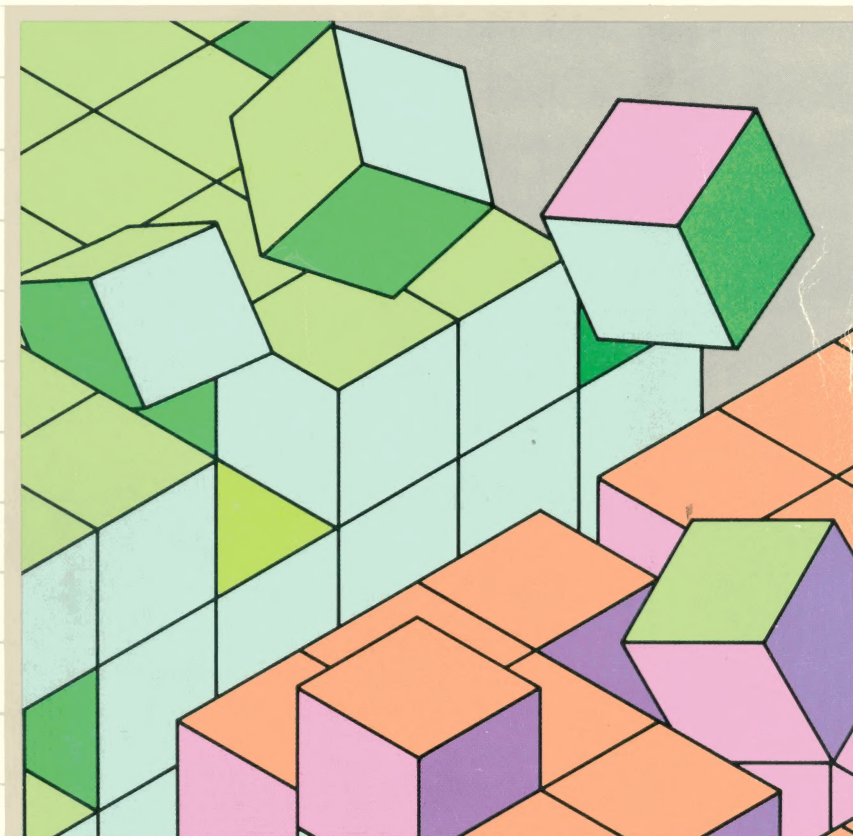


Apple II

Pascal ProFile Manager Manual

For II, II+, IIe



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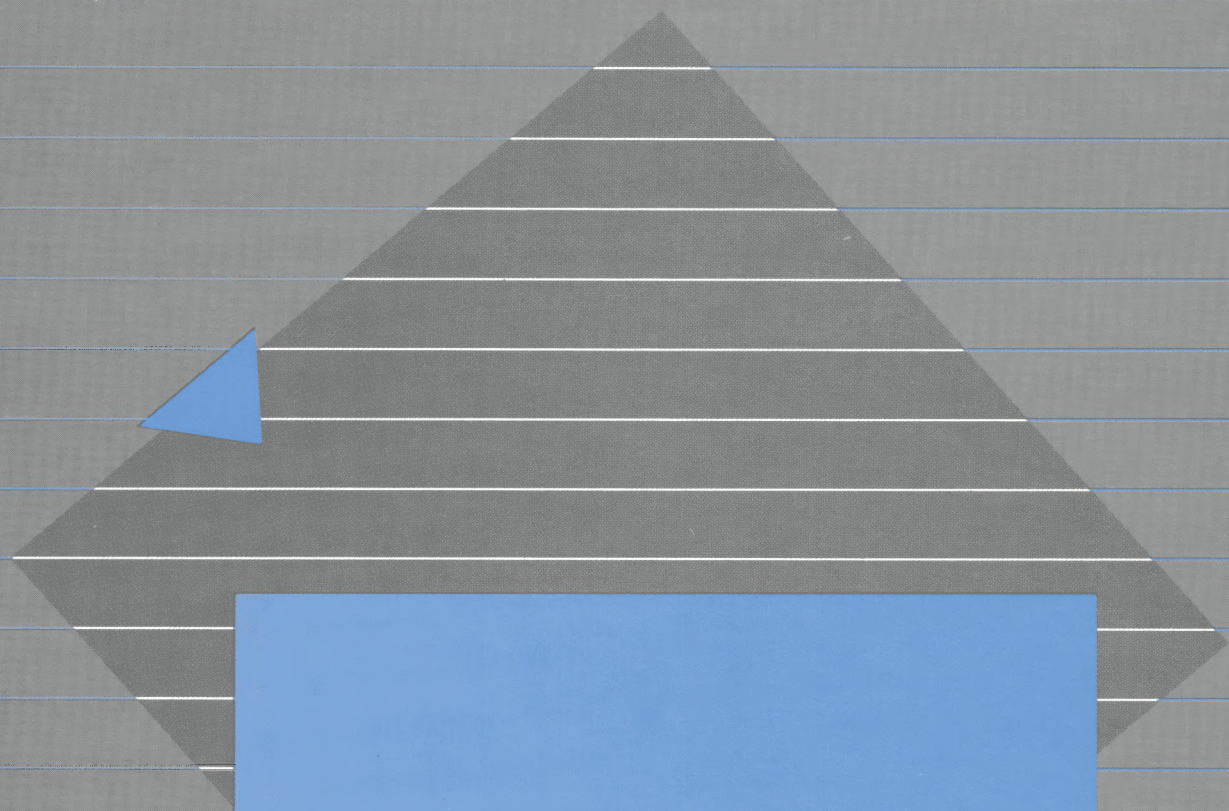
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Preface

Do You Need the Pascal ProFile Manager?

The Pascal ProFile Manager (or PPM) is the software tool you need

- If you have a Pascal-based application program that has been created to work with the ProFile™ hard disk. Check the manual that came with your application for information on how to use PPM with that particular program.

If you have an application that doesn't specifically state that you can use it with the ProFile, you must assume that you cannot. Check with your dealer for information on revisions and updates to your programs that will allow them to use the ProFile.

- If you're a Pascal programmer and you want to use the ProFile to store the Pascal development system and your own programs.

Where to Begin

If you have a Pascal-based application program that runs with the ProFile, it will have instructions in its manual for the use of PPM with the product. Follow those instructions first, then return to Chapter 1 of this manual for background information on PPM and tips on how to use the Pascal area on your ProFile. Chapter 3, "Getting Started With PPM," contains the procedure you follow each time you start up an application program that requires PPM.

After you've read Chapter 1, "Overview," you can either complete the PPM tutorial in Chapter 2, or go on to the reference section—Chapters 3, 4, 5, 6, and 7.

If you're a new PPM user and you aren't familiar with the way Pascal uses files, take the time to go through Chapter 2, "PPM Tutorial." The tutorial provides a step-by-step introduction to key PPM functions.

If you've used information in an application's manual to go through some of the basic PPM procedures, you'll be covering familiar ground in the first section of the tutorial.

The second section of the tutorial introduces Pascal Backup. It's always important to make extra copies of all information for safekeeping. Pascal Backup is the portion of PPM you use to make copies of the Pascal files stored on the ProFile. Completing this section of the tutorial will give you a feel for the backup process.

A Note to Programmers

If you're a Pascal programmer, begin with Appendix B for specific information on how to use the Pascal development system with the ProFile. Appendix B also includes an overview of PPM for people who are familiar with Pascal file-handling conventions. Read Appendix B first, then return to Chapters 1, 3, 4, 5, 6, and 7 for reference information on PPM.

Before You Begin

Regardless of whether you're an application user or a Pascal programmer, there are several pieces of equipment and several concepts you should be familiar with before you continue.

Before you go on in this manual, you should read the *Apple II ProFile Owner's Manual* which came packaged with your ProFile. This book will tell you how to install and operate your ProFile and explain how the Professional Disk Operating System™ (ProDOS) file space is set up on the hard disk. Your ProFile must be formatted for ProDOS before you can use PPM to create the Pascal file area on your ProFile.

In addition, you should be familiar with using your Apple II, II Plus, or IIe computer and with the operation of a flexible-disk drive. The concepts you need to understand can be found in the *Apple IIe Owner's Manual* and either the *DOS User's Manual* or the *ProDOS User's Manual*.

Be Kind to Yourself

If you just purchased an entire Apple II system—a computer, flexible-disk drive, monitor, and ProFile—give yourself a break. An Apple IIe with a ProFile is a sophisticated piece of equipment. It will take even the most enthusiastic new owner a while to master all of it. Take your time.

Visual Cues

Look for these visual aids throughout the manual:

Gray boxes contain incidental information and helpful hints. You'll see two types of gray box in this manual.

Q&A: Boxes labeled "Q&A" answer questions that you might have after reading a portion of the manual.

Recommendation: Boxes labeled "Recommendation" guide you toward the path of least resistance when using PPM.



Warning

Boxes labeled "Warning" point out situations in which you could lose data or damage equipment.

You will see notes in the margins that define new terms or point to useful information contained elsewhere in this manual or in other manuals.

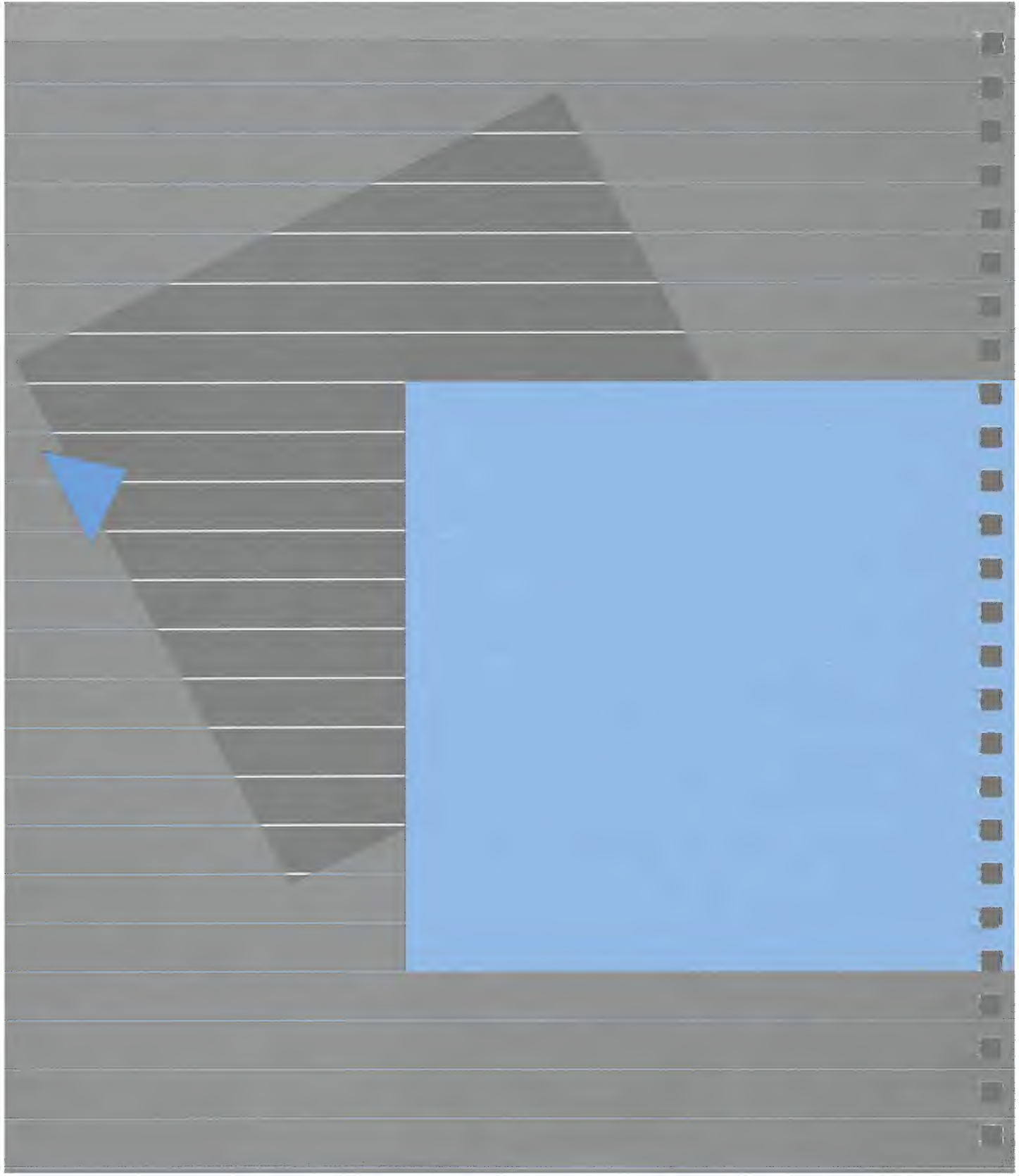
What you type on the keyboard and what you see on the screen are in this typeface.

Special function keys are represented by keycaps like these:

(ESC) (→) (←) (CONTROL)

Overview

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- 3** Why Do I Need PPM?
 - 5** PPM Structure
 - 7** Getting Around in PPM
 - 7** The Escape Route
 - 7** Using the Escape Key
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Overview

This chapter provides a brief introduction to the Pascal ProFile Manager. If you'll be using application programs that require PPM, or if you're a Pascal programmer, you'll find information in this chapter that will provide background on how and why you use PPM.

The glossary, following Appendix C, provides definitions of these and other terms you'll see in this manual.

If you're familiar with Pascal file handling procedures, and terms like **volume**, **file**, and **unit** are familiar to you, you may want to skip Chapter 2, "PPM Tutorial." After you've read this chapter, you can proceed to the reference section—Chapters 3, 4, 5, 6, and 7—for detailed information on using PPM.

If you want to use an application program with the ProFile, see the application's manual first. It gives you the basic steps you need to begin. Then you can return to this manual for more information on using PPM with your application.

See the *Apple IIe Owner's Manual*, the *DOS User's Manual*, or the *ProDOS User's Manual* for information on making backup copies.

Before you start using PPM be sure to make backup copies of the two PPM disks: *PPM Startup* and *PPM Program*.

Why Do I Need PPM?

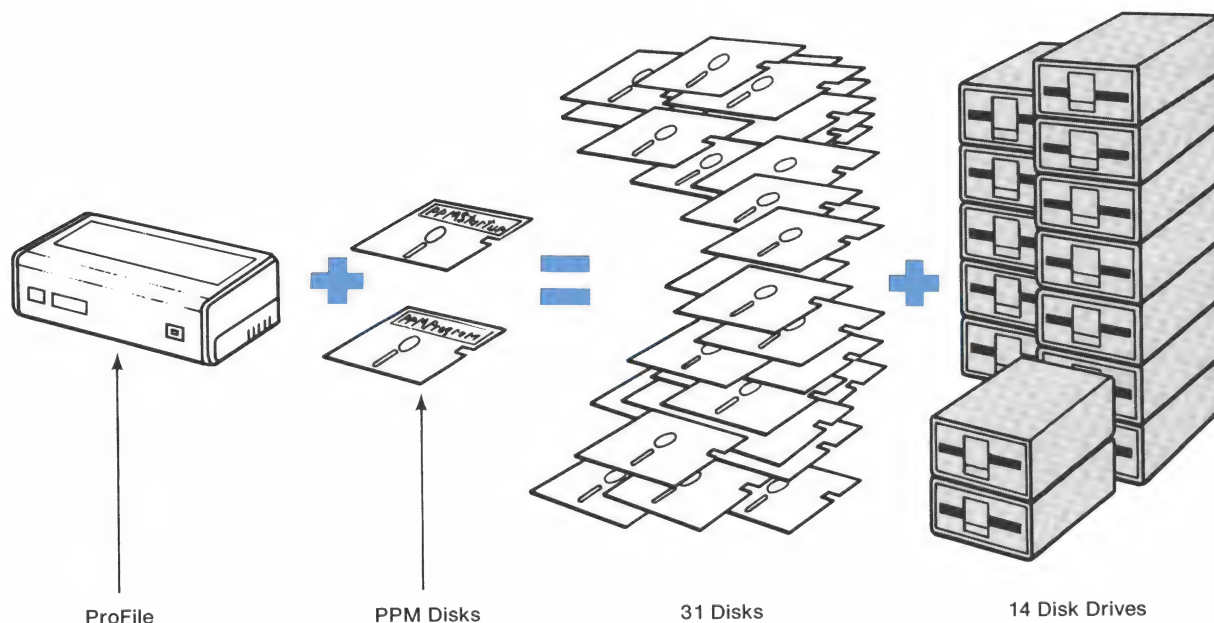
ProDOS and Pascal each use a slightly different system to organize files. You might have a similar situation in your own personal file system. If you have a two-drawer file cabinet, you might use one drawer for legal-size folders and the other drawer for letter-size folders. Although the two drawers contain the same types of information, they're stored in incompatible forms.

This is similar to the way in which ProDOS and Pascal share the ProFile. First you must format your ProFile for use with ProDOS files. Then you need to use PPM to create and manage the Pascal file area on the ProFile.

As with any other type of filing system, you'll need to learn a few special rules to use each type of file. The *ProDOS User's Manual* will give you the information you need to create and use ProDOS files. This manual will guide you through PPM and the steps you'll follow to use the Pascal area on your ProFile.

Using PPM makes the Pascal area of your ProFile equivalent to 31 flexible disks and 14 disk drives.

Figure 1-1. How PPM Uses the ProFile



Formatting prepares a volume, either a flexible disk or a hard-disk volume, for use. If you've used other operating systems with your Apple, you may have used the term *initialize*.

See Chapter 4, "The Volume Manager In Depth," for more information on units and how they're used.

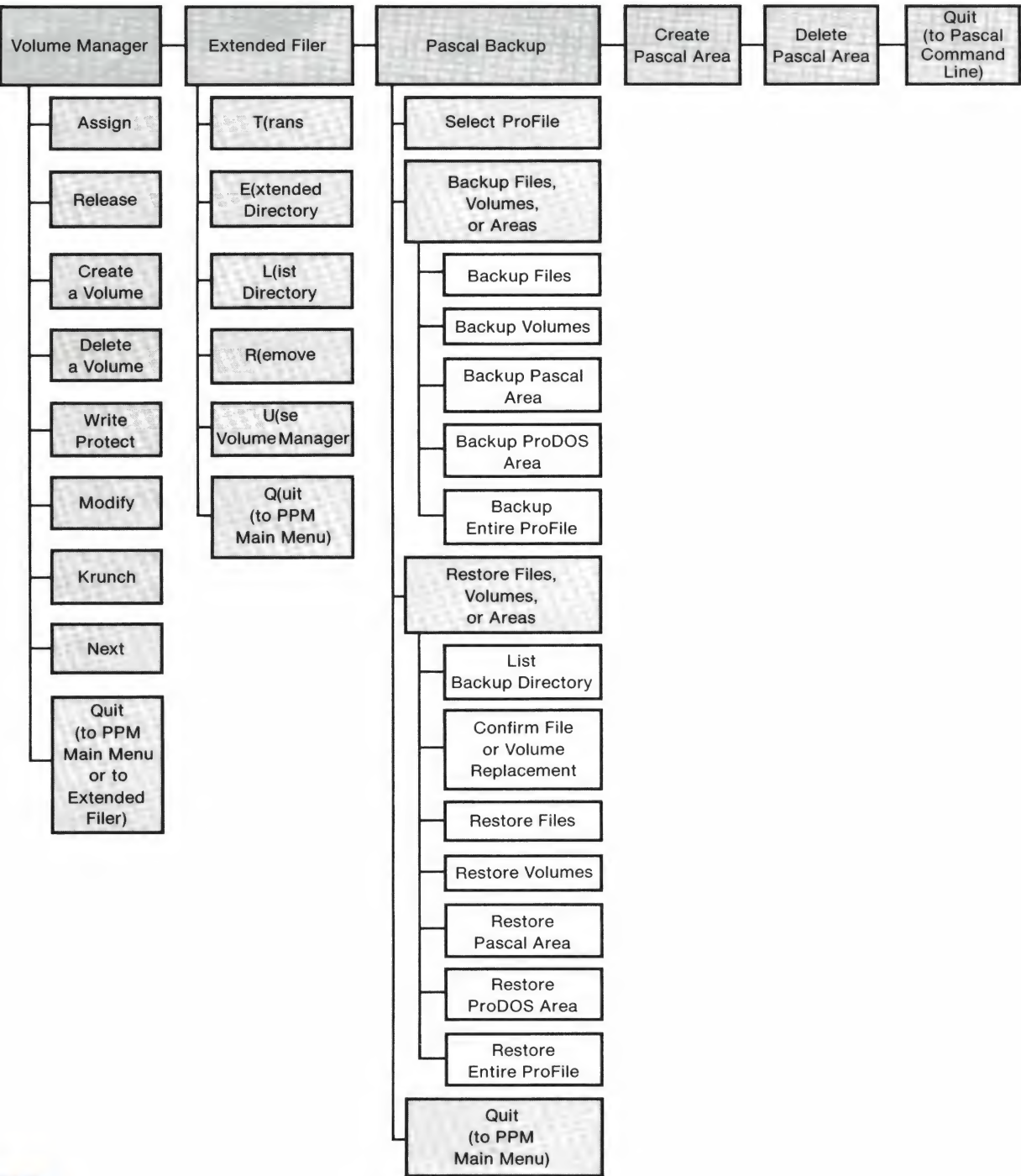
PPM Structure

These are the basic functions that PPM provides:

- First, you use PPM to create a separate Pascal area on your ProFile.
- Next, you use the PPM Volume Manager to create and manage smaller storage areas, called hard-disk volumes, within the Pascal area. You can put up to 31 of these volumes in the Pascal area. Creating a hard-disk volume is just like **formatting** a blank flexible disk. The only difference is that you don't have the size limitations that you have when you use flexible disks. You can make the hard-disk volume any size you like, up to the size of the entire ProFile.
- You also use the Volume Manager to assign your hard-disk volumes to units. Just as you cannot use a flexible disk until you've put it into a disk drive, you can't use a hard-disk volume until it's been assigned to a unit. You can assign volumes to as many as 14 units at one time, giving you the equivalent of 14 disk drives.
- Once you've set up your storage area, you can use the PPM Extended Filer to transfer the contents of flexible disks to the ProFile. You can also use the Extended Filer to look at the contents of your volumes.
- Finally, you can use PPM Pascal Backup to make extra copies of your files for safekeeping.

PPM uses a menu structure to organize its different functions. By now you've probably come across the idea of menus. A menu simply lists the options available to you so that you can choose which one you want.

Figure 1-2. Pascal ProFile Manager Structure



When you select one of these options you'll see either a command line or a submenu. Each option listed in the command line or submenu will perform a particular task.

You can use this chart to find where you are within PPM if you get lost, or as a road map to help you plan the steps you'll use to set up your ProFile for use with Pascal.

See Figure 1-2 for an overview of PPM structure.

Getting Around in PPM

PPM is organized in layers. The PPM Main Menu is the first layer. When you select any of the options displayed on the Main Menu, you reach the second layer. As you continue to select options, you move down through the different levels of PPM.

The Escape Route

If you ever find yourself in unknown territory, or you've taken a wrong turn via a typographical error, you can find your way back to a more familiar setting by using either the Escape key (**ESC**) or the Quit option.

Using the Escape Key

In many cases pressing **ESC** will cancel the last instruction you gave the program. Here are two situations where you can use **ESC**:

- You want to create a hard-disk volume. To do this, you select the Create option from the PPM Main Menu. But instead of typing **C**, you accidentally type **D**. You find yourself being asked which volume you want to delete. To cancel the Delete option and return to the PPM Main Menu, press **ESC**.
- Or, when you're typing in the name of the volume you want to create, you type **DATA** for the name of the volume, instead of **DATA**. Pressing **ESC**, *before* you've pressed **RETURN**, will erase your entry and let you try again.

In some cases **ESC** isn't the choice for getting out of a tight corner. Pressing **ESC** won't hurt anything, but it won't get you back to where you want to be. For example, in the first situation, if you'd typed **X** instead of **D**, you'd find yourself in the Extended Filer. Pressing **ESC** won't help here. You have to use the Quit command.

Using the Quit Command

Many menus and command lines within PPM give you the Quit option. Typing **Q** will take you back to the next higher level of the program.

When you use the Extended Filer, the Quit command will take you back to the PPM Main Menu.

When you use the Volume Manager, the Quit command will take you back to one of two places. If you selected the Volume Manager from the PPM Main Menu, you'll return to the Main Menu when you use the Quit command. If you selected the Volume Manager from the Extended Filer, using the Quit command will return you to the Extended Filer. Then from the Extended Filer you can use the Quit command to return to the PPM Main Menu.

A Note on the Arrow Keys

If you have an Apple IIe, you'll be using the four direction arrows to move the cursor around on the screen, as well as for making selections from lists.

If you have an Apple II or II Plus, you'll use the two direction arrows and use **(CONTROL)-(O)** to move the cursor up and **(CONTROL)-(L)** to move the cursor down.

PPM Tutorial

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 - 14** A Note on the Tutorial Format
 - 15** Starting Up PPM
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 - 19** Creating a Hard-Disk Volume
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 - 45** Wrapup



PPM Tutorial

The PPM Tutorial is a step-by-step introduction to the most important PPM functions. If you're a new PPM user you'll find the tutorial a simple way to learn the steps you'll go through to use an application with the ProFile.

In this chapter you'll use PPM to

- Establish the Pascal area on the ProFile,
- Create a hard-disk volume,
- Assign a hard-disk volume to a unit,
- Transfer information from a flexible disk onto the ProFile,
- Back up a hard-disk volume,
- Restore a hard-disk volume,
- Remove files from a hard-disk volume, and
- Delete a hard-disk volume.

The tutorial will show you the different menus and command lines you see as you use the various PPM functions. You'll also see figures showing you how what you're doing changes the storage space on the ProFile.

The tutorial introduces you to PPM by creating a volume called **EXAMPLE**. You'll be moving files to and from this volume, as well as backing it up and then restoring its contents. When you've completed these steps, **EXAMPLE** will have served its purpose. Deleting **EXAMPLE** introduces you to simple ProFile housekeeping.

Before You Begin

Before you begin the tutorial, you should have your Apple II, at least one flexible-disk drive, and your ProFile all connected and in working order. You will also need two blank flexible disks.

Your ProFile must be formatted for use by ProDOS before you can use any of the PPM functions. If you haven't already done so, see either the *Apple II ProFile Owner's Manual* or the *ProDOS User's Manual* for how to format a volume.

Q&A: "Do I really need to go through the tutorial?"

Most people find that tutorials give them basic information in a simple form. If you generally prefer hands-on exercises to simply reading manuals, you may find the tutorial is the fast way to learn about PPM.

If you still have reservations, go to Chapter 4, "The Volume Manager in Depth." If you feel comfortable with this type of conceptual overview, you can skip the tutorial.

If your application's manual gives you step-by-step instructions on using PPM with that particular application, you may find that the tutorial covers many of the same topics. You might want to proceed directly to Chapter 4.

Q&A: "How long will it take to go through the tutorial?"

It should take you about 45 minutes to an hour to complete the tutorial. Or, if you like, you can go through it in two sessions. When you reach the section called "The Halfway Point," you can stop and decide whether you want to complete the tutorial in one sitting, or come back later to complete the steps.

A Note on the Tutorial Format

Tutorial text appears in two columns. The first column, headed "What You Do," contains specific instructions on which keys you press at each step.

The second column tells you what to expect after you follow the instructions in the first column.

As you go through the tutorial you'll be introduced to new terms and concepts. You won't always find complete explanations in the tutorial, but marginal notes will point you to the sections of the manual that contain complete information.

Starting Up PPM

The first step in using PPM is to load the PPM program into the computer's main memory.

What You Do

1. Turn on the ProFile and wait until the Ready light stops blinking.

2. With your thumb on the disk label, and with the label facing up, put the *PPM Startup* disk into your first flexible-disk drive and close the drive door.

3. Turn on the video monitor.

4. Turn on the Apple II.

You will see the message:
Insert boot disk
with SYSTEM.PASCAL
on it, then press
RETURN.

The second PPM disk, *PPM Program*, is the disk with SYSTEM.PASCAL on it.

5. Take *PPM Startup* out of the disk drive and insert *PPM Program*, then press **RETURN**.

In about 15 seconds, you will see the question, Assign volumes to their default unit number? (Y/N)

6. Type N.

The disk drive whirs for a moment. You see the message: Loading Pascal ProFile Manager..., and then the PPM Main Menu appears on the screen.

Default unit numbers are explained in Chapter 4, "The Volume Manager in Depth."

```
Pascal ProFile Manager      Copyright 1983 Apple Computer, Inc.   Version 1.0
-----
Type the first letter to select an option, Option?

VVolume Manager program
Xxtended Filer program
Bbackup program
Ccreate a Pascal Area on the ProFile
Ddelete Pascal Area from the ProFile
Qquit
```

Q&A: "Why do I see only half of the display?" This tutorial is written assuming that you have an 80-column text card installed in your computer. If you do not have an 80-column card, the displays that you see as you follow the steps in the tutorial will be different than those that appear in this manual.

You can see the the opposite side of a 40-column display screen by pressing **(CONTROL)-(A)**. If you're looking at the right side of your screen, **(CONTROL)-(A)** will give you the left side, and if you're looking at the left side, **(CONTROL)-(A)** will give you the right side.

Creating the Pascal Area

The fourth item on the Main Menu is `Create A Pascal Area on the ProFile`. The Create option puts a directory on the ProFile that contains information about what's in the Pascal area.

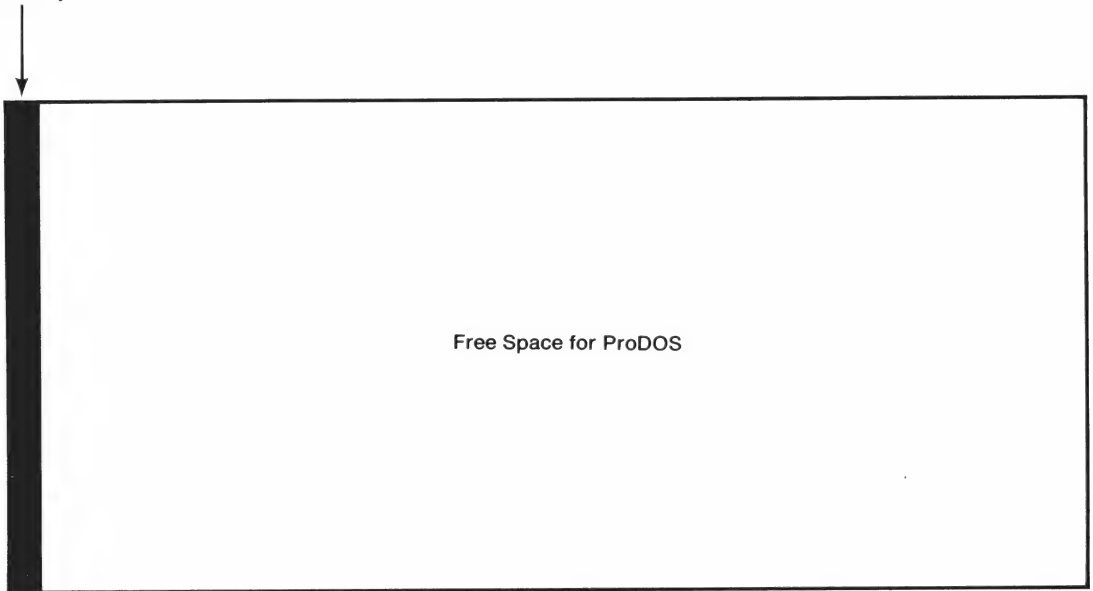
If you haven't formatted the ProFile for ProDOS, see either the *Apple II ProFile Owner's Manual* or the *ProDOS User's Manual* for instructions.

Your ProFile must be formatted for ProDOS before you can create the Pascal area. Figure 2-1 shows what the ProFile looks like after you've formatted it.

Figure 2-1. ProDOS Formatted ProFile

The diagrams of ProFile storage space are only meant to give you a concept of how that space is used. They aren't drawn to scale.

ProDOS
Directory



What You Do

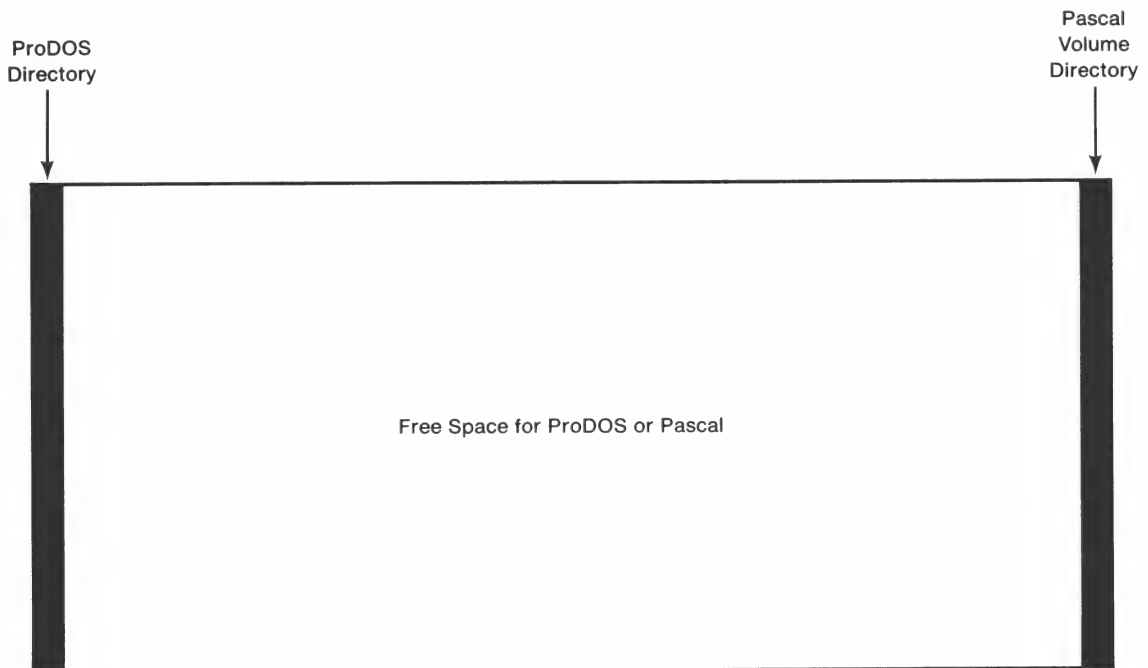
- | | |
|--|---|
| 1. Type C to select C(create a Pascal Area on the ProFile. | You see a display showing available ProFile drives and the question: Create a Pascal Area... Create Pascal area on which drive? (Enter number.) |
| 2. Type 0 and then press (RETURN). | 0 is the drive number of the ProFile. You return to the PPM Main Menu. |
-

Q&A: "Why is the ProFile drive 0?"

PPM can be used with up to three ProFiles. They are numbered 0, 1, and 2. If you have only one ProFile, it is automatically drive 0.

If you have more than one ProFile, the one in the lowest-numbered slot is drive 0.

Figure 2-2. ProFile With Both ProDOS and Pascal Areas



A **hard-disk volume** is a storage unit for Pascal files, equivalent to a flexible disk, but of definable size. See the next section for more information.

You've just created the Pascal area. As you can see by looking at Figure 2-2, there isn't much to it, only the Pascal volume directory. But now it's possible to create Pascal **hard-disk volumes**. The Pascal area is a permanent feature of your ProFile, unless you reformat your hard disk using the ProDOS Formatter or you delete the Pascal area using the Delete option on the PPM Main Menu. If you ever reformat, you will have to create the Pascal area again, using this option on the PPM Main Menu.

Q&A: "When would I have to reformat the ProFile?"

If you're using both ProDOS and Pascal files on your ProFile, you may occasionally need to do some housekeeping chores to ensure the most efficient use of the Pascal area. Reformatting the ProFile may be one step required. See Chapter 7, "A Complex Example," for more information.



Warning

Reformatting is a potentially dangerous procedure. Reformatting erases everything on the ProFile. Make sure you have other copies of all the information on the ProFile that you want to keep.

You may have expected to see the ProFile neatly divided into two storage areas: half for ProDOS and half for Pascal. However, it would be a rare computer user whose files were exactly half ProDOS and half Pascal.

Instead of dividing the ProFile neatly down the middle, PPM and ProDOS work together to use the space on the ProFile efficiently. ProDOS uses file space at one end of the ProFile, and Pascal uses space at the other end. The space in the middle is available to both ProDOS and Pascal.

When you create a hard-disk volume, PPM makes room for it by moving the volume directory into the unused space. The area between the two directories is still available for use by either ProDOS or Pascal.

Creating a Hard-Disk Volume

The next step in getting the ProFile ready for your Pascal files is to create a hard-disk volume. A hard-disk volume is exactly the same as a flexible disk—with one exception. A hard-disk volume can be almost any size you like. A flexible disk is always 280 **blocks**.

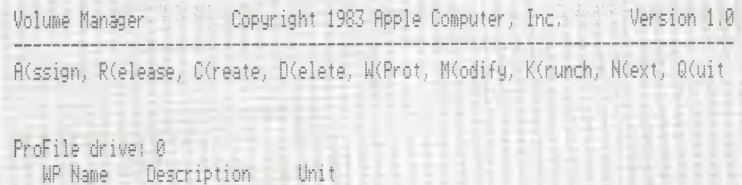
You should still have the PPM Main Menu on the screen.

A **block** is a unit of disk storage that holds 512 bytes of information. It takes one byte to store the code for one letter, number, or space. One typed, single-spaced page holds about 2000 characters or four blocks.

What You Do

1. Type **V** to select the Volume Manager. The Volume Manager is the set of options you need to create hard-disk volumes.

The Volume Manager command line appears on your screen.



```
Volume Manager  Copyright 1983 Apple Computer, Inc.  Version 1.0
-----
A(ssign, R(elease, C(reate, D(elete, W(prot, M(odify, K(runch, N(ext, Q(uit

ProFile driver: 0
  WP Name      Description      Unit
```

2. Type **C** to select the Create command from the Volume Manager command line.

The question Create a volume...What is the name for this volume? appears on the screen.

3. Type **EXAMPLE** and then press **(RETURN)**.

You're asked What is the description field?

4. Type **PPMPROG** and then press **(RETURN)**.

Finally you see the question What is the size of this volume in blocks?

5. Type **300** and then press **(RETURN)**.

The hard-disk volume **EXAMPLE** appears on the Volume Manager display.

See Chapter 4, "The Volume Manager in Depth," for more detailed information on the Volume Manager listing.

The volume you've just created is now listed under the Volume Manager command line on your screen. The display shows you the name and description of the volume you've just created.

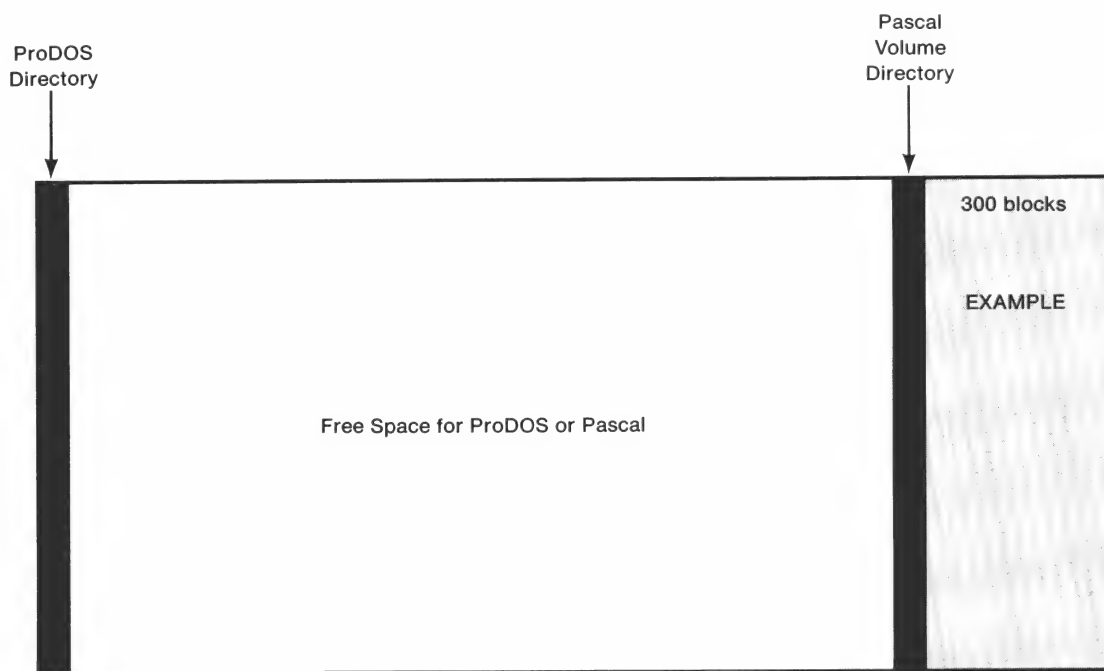
```
Volume Manager      Copyright 1983 Apple Computer, Inc.      Version 1.0
-----
A(ssign, R(elease, C(create, D(elete, W(Prot, M(odify, K(runch, N(ext, Q(uit

ProFile drive: 0
  WP Name      Description      Unit
  EXAMPLE PPMPROC
```

Remember that the volumes you create are just like disks. From now on, instead of sorting through a pile of flexible disks when you want to use a program, you'll go to the Volume Manager to select the volume you want to use.

Figure 2-3. ProFile With One Hard-Disk Volume Created

Figure 2-3 shows how space is used on the ProFile after you create EXAMPLE.



When PPM created the hard-disk volume, it moved the volume directory into the free space on the ProFile to make room for the volume. Now the Pascal area on the ProFile includes both the volume directory and the volume EXAMPLE.

Units are explained in more detail in Chapter 4, "The Volume Manager in Depth."

Assigning a Hard-Disk Volume to a Unit

Before you can use the volume you've just created, you must assign it to a unit. The easiest way to understand this process is to remember that hard-disk volumes are the equivalent of the flexible disks you use every day. Just as you can't use a disk until you've put it in a disk drive, you can't use a hard-disk volume until you've assigned it to a unit.

The units you can use with the ProFile are numbered 4, 5, 9-20, and 128-143. Units #4 and #5 are generally assigned to the first and second flexible-disk drives. In this section of the tutorial you use the Volume Manager Assign command to assign EXAMPLE to unit #9.

You should still have the Volume Manager display on your screen.

What You Do

- | | |
|---|--|
| 1. Type A. | You see the message: Assign a volume..., and an arrow appears to the left of EXAMPLE on the Volume Manager display. |
| 2. Press <input type="rightarrow"/> . | A highlighted bar appears across EXAMPLE and you see the message Assign to what Pascal unit number? |
| 3. Type 9 and then press <input type="return"/> . | The Volume Manager display changes. Notice that #9 now appears to the right of EXAMPLE under the column headed Unit. |
-

Now that you've assigned EXAMPLE to unit #9, you can use it in the same ways you'd use a flexible disk.

See Chapter 4, "The Volume Manager in Depth," for a more detailed explanation of these topics.

Q&A: "Is EXAMPLE permanently assigned to unit #9?"

No, it isn't. You can put as many as 31 volumes on your ProFile, but only 14 of them can be assigned to units. You have to have a way to change unit assignments.

You can change EXAMPLE's unit assignment in three ways. You can use the Volume Manager Release command. This cancels the assignment of the unit. You can use the Assign command to assign unit #9 to a different volume. This would automatically release EXAMPLE. Or, the next time you use PPM, when you see the question Assign volumes to default units?, you can answer "No." This releases all currently assigned volumes from their units.

Getting Into the Extended Filer

By creating EXAMPLE you've made a space of 300 blocks for storing Pascal files. Assigning EXAMPLE to unit #9 makes it available for use. The next step is to use the Extended Filer to transfer files from the two PPM disks to EXAMPLE.

You should still have the Volume Manager display on your screen.

What You Do

- | | |
|--|--|
| 1. Type Q . | You return to the PPM Main Menu. |
| 2. Next, type X to select the Extended Filer. | You see the Extended Filer command line. |

Filer:G(et, S(ave, W(hat, N(ew, L(dir, R(em, C(hng, T(rans, D(ate, Q(uit, [1,2]

- | |
|--|
| 3. Take <i>PPM Program</i> out of drive 1. |
| 4. Replace it with <i>PPM Startup</i> . |

A **file** is a body of information, with its own name, stored on a volume (either a hard-disk volume, or a flexible disk).

A filer is a program that manages **files**. With a filer you can move files from one storage area to another, rename files, and find out which files you have on a particular volume.

The Extended Filer is based on the Filer used by the Pascal Operating System. In this tutorial you use five of the six Extended Filer commands meant for use with PPM: the Transfer command, the Extended Directory command, the Remove command, the Use Volume Manager command, and the Quit command. You can also use the List Directory command, which is explained in Chapter 5.

All of the other Extended Filer commands are useful only to Pascal programmers. If you want to learn more about the Filer commands that aren't required by PPM, see your Apple dealer for a copy of the *Apple II Pascal Operating System Reference Manual* (Apple Product Number A2L0028). This manual contains detailed information on the Pascal Filer.

If you ever accidentally type a letter that corresponds to one of the other Extended Filer commands, just type **(RETURN)** until you get back to the Extended Filer command line.



Warning

It is potentially dangerous to use the Zero command (Z), the Examine command (X), or the Bad Blocks command (B) with the ProFile. If you experiment with these commands you may accidentally erase important information.

At the top of your screen you will see several commands. The first one is **GGet**. You'll also see **Lcdir** and **TTrans**.

Not all of the Filer commands can fit on the display screen at one time. If you type a question mark, you will see the remaining commands.

As long as you are in the Extended Filer you can use any one of the Filer commands, even if it isn't currently displayed on the screen.

Using the Transfer Command

Now you will use the Transfer command to copy the contents of a flexible disk to a hard-disk volume. The Transfer command makes a new copy of the information on the hard-disk volume. The original copy is still on the flexible disk.

What You Do

- | | |
|---|--|
| 1. Type T to select the Transfer command. | You see the question:
Transfer what file? |
|---|--|
-

The message, or prompt, is asking you for the name of the file that you want to copy. The Transfer command doesn't move files from one volume to another—it makes copies of files.

In this case you want to copy all files on the disk to one of the hard-disk volumes on the ProFile.

- | | |
|---|---------------------------------|
| 2. Type #4:= and then press <u>(RETURN)</u> . | You see the prompt To
Where? |
|---|---------------------------------|
-

The sequence of characters you just typed tells the Filer to copy all the files on the volume assigned to unit #4. Unit #4 is the first flexible-disk drive. The volume assigned to it is the *PPM Startup* disk, which has only one file on it.

- | | |
|---|---|
| 3. Type #9:= and then <u>(RETURN)</u> . | This indicates that you want all the files transferred to unit #9 on the ProFile. |
|---|---|

The disk drive whirs and the In Use light comes on for a moment. The ProFile's Ready light will flash on and off.

The Extended Filer is reading information from the disk in the disk drive and transferring it to the ProFile. When the transfer is complete you see a message under the command line:

```
Filer: CGet, SSave, WWhat, NNew, LDir, RRem, CChng, TTrans, OGate, QQuit[1,2]
PPMSTAR:SYSTEM.APPLE -> EXAMPLE:SYSTEM.APPLE
```

PPM has transferred SYSTEM.APPLE, the one file on *PPM Startup*, to the hard-disk volume EXAMPLE, which is assigned to unit #9 on the ProFile.

Chapter 2: PPM Tutorial

The equal sign (=) you just typed is a **wildcard**. See Chapter 5, "The Extended Filer in Depth," for more information.

Now transfer the contents of the second PPM disk, *PPM Program*, to EXAMPLE.

What You Do

1. Take *PPM Startup* out of drive 1.

2. Put *PPM Program* in drive 1.

3. Type T.

You see the question
Transfer what file?

4. Type #4:= and then press
(RETURN).

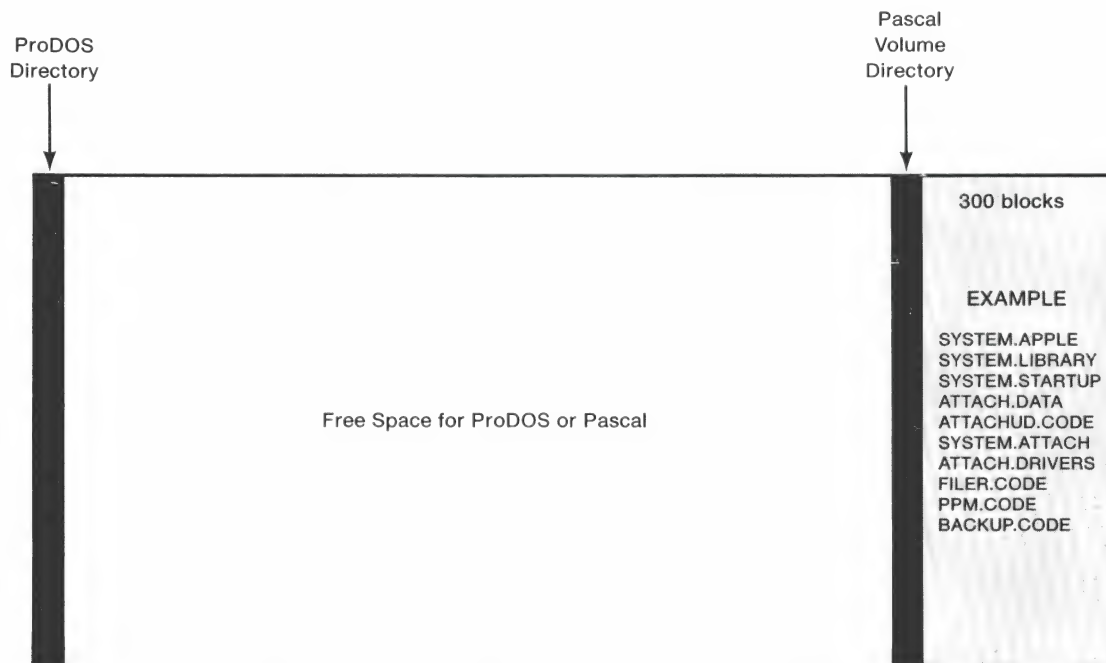
You see the question To
Where?

5. Type #9:= and then press
(RETURN).

The disk drive whirs and the In Use light comes on again. The ProFile's Ready light flashes on and off. Each time the Filer transfers a file to EXAMPLE, another line will appear on the display. When all the files on *PPM Program* have been transferred, you'll see the display shown below.

```
Filer: C(et, S(ave, W(hat, N(ew, L(dir, R(em, C(hng, T(rans, D(ate, Q(uit[1,2]
PPMROG:SYSTEM.LIBRARY      -> EXAMPLE:SYSTEM.LIBRARY
PPMROG:SYSTEM.MISCINFO     -> EXAMPLE:SYSTEM.MISCINFO
PPMROG:SYSTEM.PASCAL       -> EXAMPLE:SYSTEM.PASCAL
PPMROG:SYSTEM.STARTUP      -> EXAMPLE:SYSTEM.STARTUP
PPMROG:ATTACH.DATA         -> EXAMPLE:ATTACH.DATA
PPMROG:ATTACHUD.CODE       -> EXAMPLE:ATTACHUD.CODE
PPMROG:SYSTEM.ATTACH       -> EXAMPLE:SYSTEM.ATTACH
PPMROG:ATTACH.DRIVERS      -> EXAMPLE:ATTACH.DRIVERS
PPMROG:FILER.CODE          -> EXAMPLE:FILER.CODE
PPMROG:PPM.CODE            -> EXAMPLE:PPM.CODE
PPMROG:BACKUP.CODE         -> EXAMPLE:BACKUP.CODE
```

Figure 2-4. ProFile With Hard-Disk Volume Containing PPM Files



Using the Extended Directory Command

Now you'll use another Filer command, `E{dir` (which stands for Extended Directory), to display the contents of hard-disk volume EXAMPLE.

You should still have the Extended Filer command line on your screen.

What You Do

- | | |
|--|---|
| 1. Type <code>E</code> to select the Extended Directory command. | You see the question <code>Dir listing of what vol?</code> |
| 2. Type <code>#9</code> and then press <code>(RETURN)</code> . | You see an Extended Directory listing display similar to the one below. |

```

Files: G(et, S(ave), W(hat, N(ew), L(dir, R(em), C(hng, T(rans, D(ate), Q(uit [1,2]
EXAMPLE:
SYSTEM.APPLE      32  3-Oct-83  16  512  Datafile
SYSTEM.LIBRARY    3  3-Oct-83  38  512  Datafile
SYSTEM.MISCINFO   1  3-Oct-83  41  192  Datafile
SYSTEM.PASCAL     43  3-Oct-83  42  512  Codefile
SYSTEM.STARTUP    2  3-Oct-83  85  512  Codefile
ATTACH.DATA       1  3-Oct-83  87  32   Datafile
ATTACHUD.CODE     14  3-Oct-83  88  512  Codefile
SYSTEM.ATTACH     10  3-Oct-83  102 512  Codefile
ATTACH.DRIVERS    13  3-Oct-83  112 512  Datafile
FILER.CODE        61  3-Oct-83  125 512  Codefile
PPM.CODE          43  3-Oct-83  186 512  Codefile
BACKUP.CODE       57  3-Oct-83  229 512  Codefile
<UNUSED>         14  3-Oct-83  286
12/12 files (listed/in-dir), 286 blocks used, 14 unused, 14 in largest

```

See Chapter 5, "The Extended Filer in Depth," for an explanation of the other information displayed by the Extended Directory command.

The Extended Directory command displays information about each of the files stored on a hard-disk volume. You'll see the name of each file on your hard-disk volume, as well as other useful information about each file.

The Halfway Point

You've completed about half of the PPM Tutorial. If you'd like to spend another half an hour or so, you can go on to complete the remaining steps. Or you can come back later and begin at this point.

The first half of the tutorial covered the most important PPM functions. You should now be able to use PPM with any application that requires you to create volumes and assign them to units.

The second half of the tutorial covers backing up volumes and restoring information from a backup to the ProFile. If you don't complete the tutorial you can go to Chapter 6, "Pascal Backup in Depth," for information on these procedures.

If you stop now and turn off your Apple II, or use other programs with the computer, follow these steps before going on with the tutorial:

1. Start up PPM. Insert *PPM Startup* and turn the power on. When you see the message asking for the second disk, insert *PPM Program*.
2. When you see the question `Assign volumes to their default units?` type `Y` for Yes.
3. From the PPM Main Menu, type `X` to select the Extended Filer.

Now you're back to where you left the tutorial after you completed the first section.

Backing Up a Hard-Disk Volume

It's important to make extra copies of the programs and information you use with your computer. It's not hard to imagine situations in which these copies could be lifesavers.

What happens if your Payroll disk ends up at the bottom of your briefcase, underneath your running shoes? Or if you accidentally send this week's accounts receivable disk to your aunt in Boston, rather than the newest version of the family tree disk you had sitting on your desk?

Assigning default units is discussed in Chapter 4, "The Volume Manager in Depth."

Back up is the process you use to duplicate information stored on a disk for safekeeping.

See Chapter 6 for a conceptual overview of backup. Also see the *Backup II User's Manual* for more information.

If you've been a prudent computer user, you have a spare copy of these disks waiting in a safe place in case of just such emergencies.

Slightly different problems can occur with hard disks. Although it's not likely that your ProFile will end up in Boston without you, you may find that one day you're updating an important file when the power goes out unexpectedly. When the lights come back on, your file may be gone. And gone for good, if you haven't taken the time to make a backup copy.

PPM provides a Backup option to make backup copies of all your important information.

This part of the tutorial covers the steps involved in backing up a hard-disk volume, file by file. It assumes that you are using only one flexible-disk drive.

If you're returning to the tutorial after using your computer for something else, see the preceding section, "The Halfway Point," for the steps to follow to bring you back to this point.

If you just completed the last section on using the Extended Directory command, you should still have the Extended Directory listing on your screen.

What You Do

- | | |
|---|---|
| 1. Type Q . | You return to the PPM Main Menu. |
| 2. Type B to select Pascal Backup. | The Pascal Backup menu appears on the screen. |
-

Press the first letter to select an option. Option?

S(elect a ProFile for Backup/Restore. Current Drive is 0

B(ackup Files, Volumes, or Areas

R(estore Files, Volumes, or Areas

Q(uit

Written by Naru Enterprises, Inc.

3. To choose the Backup Files, Volumes, or Areas option type B.

You see the Backup Files, Volumes, or Areas display.

Pascal Backup Copyright 1983 Apple Computer, Inc. Version 1.0

Backup Files, Volumes, or Areas

Press the first letter to select an option: Option?

Files. Backup selected files in a volume

Volumes. Backup selected volumes

Pascal Area. Backup the entire Pascal Area

Non-Pascal. Backup the ProDOS Area

Device. Backup the entire ProFile

Q&A: "The first option on the Pascal Backup menu is S(elect a ProFile for Backup/Restore. Why don't I use this option first?"

If you have only one ProFile it is automatically selected by Pascal Backup. You only use this option when you have more than one ProFile.

4. Type F to select the Backup Selected Files option.

Now the Volume Selection screen will appear. Before you choose files to back up, you must select the volume that contains the files.

Pascal Backup v 2.4 by Copyright 1983 Apple Computer, Inc. Version 1.0

Select Files to Backup. Currently selected 0 Files from drive 0. (PROFILE)
(Press RETURN to accept selections, press ESCAPE to cancel Backup)

Backup from which volume:

Name	Description
-> EXAMPLE	PPMPROG

Q&A: "Why did I select the Backup Selected Files option rather than the Backup Selected Volumes option?"

When you back up a volume by choosing the Backup Selected Volumes option, Pascal Backup copies everything on the volume, including unused space, to flexible disks.

If you back up the contents of a volume using the Backup Selected Files option, you copy only files to the disks—not the unused space between files. The result is that you use fewer disks for a backup than you would using the Backup Selected Volumes option.

If you're facing a backup that may take 20 or 30 disks, you may save disk space by using the Backup Selected Files option.

Backing up by file takes a few more steps, and therefore some extra time. If you've got disks to spare, you may want to back up by volume rather than by file.

Under the message Backup from which volume: you see the name and description of the volume you created earlier in the tutorial. To its left there's an arrow and a cursor.

5. To select this volume for backup, press .

The File Selection display appears on the screen. Once you've selected a volume you must then select the particular files on that volume that you want to back up.

```
Pascal Backup           Copyright 1983 Apple Computer, Inc.      Version 1.0
-----
Select Files to Backup.  Currently selected 0 Files from drive 0. (PROFILE)
(Press RETURN to accept selections, press ESCAPE to cancel Backup)

Backup from which volume: EXAMPLE:
Backup which file(s)?
-----
```


The equal sign (=) is a wildcard. Wildcards are used in Pascal Backup just as you used them with the Transfer command earlier in the tutorial. See Chapter 6, "Pascal Backup in Depth," for more information.

6. To select every file on the volume EXAMPLE, type =. Then press (RETURN) .	A list of every file on EXAMPLE appears.
7. Press (RETURN) .	The Volume Selection display appears again. If you wanted to back up files from other volumes, you would repeat the process of selecting a volume and then selecting files on that volume.
8. Now press (RETURN) to continue.	You see the Backup Options display.

You've selected the volume, and the files on that volume, that you want to back up. The Backup Options display shows you how many files you're backing up, which drive those files are located on, and the number of disks you'll need for your backup copies.

You must supply four more pieces of information before the backup process can begin.

The first item on the Backup Options display is Backup to which unit number?.

9. Type 4 to select unit #4, the first flexible-disk drive. Then press (RETURN) .	You see a message asking you to remove <i>PPM Program</i> from unit #4.
10. Remove <i>PPM Program</i> and press (RETURN) .	The question Verify destination disk [Yes/No]? Yes appears.

The **destination disk** is the flexible disk to which backup information is copied.

```
Pascal Backup 777777 Copyright 1983 Apple Computer, Inc. Version 1.0
-----
Backing up 11 Files from Drive 0.(PROFILE)

Backup will use 2 disks.

Backup to which unit number? 4

Verify destination disk [Yes/No]? Yes
```

If you answer “Yes,” the Backup program checks each disk in the backup set to make sure that the information on it is readable. This verification takes place after each disk is filled with information.

The **default** is an answer, value, or setting that is used by the program if you don't specify a different choice.

“Yes” is the default selection. This means that if you simply press **(RETURN)** you will answer “Yes” to the question.

11. Press **(RETURN)**.

The message **Send listing to:** appears.

12. Press **(RETURN)**.

CONSOLE: appears next to **Send listing to:**. The cursor moves down to **Comments:**.

Each time you perform a backup you get a list of each file copied. You can have this list sent to the display screen (CONSOLE:), to a printer, or to a file. CONSOLE: is the default choice.

13. Type Backup of PPM disks, (insert current date). Press (RETURN).	You see a prompt asking you to insert a blank disk.
--	---

The information you typed in the COMMENT: field will go on each backup disk in the set.

14. Place a blank flexible disk in drive 1. Press (RETURN).

The lights flash on both the ProFile and the flexible-disk drive. The message `Formatting disk in unit 4` appears. The disk drive whirs, and when the disk is formatted you see the message `Formatted disk successfully`.

Now each file on EXAMPLE is copied to the disk in drive 1. After each file is transferred, the name of the file and the number of blocks it contains appear on the screen.

When the first disk is full a message appears asking you to take the first disk out of drive 1 and replace it with another blank flexible disk.

15. When you see this message, take out the first disk and insert the second blank disk. Press the (SPACE) bar.

Once again the lights on both the ProFile and the external disk drive flash and the disk drive will whirl for a moment. You see the same sequence of messages that appeared while the first disk was in use.

When the remaining files on EXAMPLE have been copied to the second disk, you see the message `12 files backed up successfully. Please remove disk from first disk drive and insert PPM Program. This` confirms that you have successfully completed transferring copies of each file on hard-disk volume EXAMPLE to the two flexible disks you used during the backup process.

16. Remove the backup disk from drive 1.

17. Insert *PPM Program* in drive 1.

18. Press the **(SPACE)** bar to continue.

19. Label each of the disks you've just made. The first disk should be labeled "PPM Backup: 1 of 2" and the second "PPM Backup: 2 of 2".

If you haven't already done so, be sure to make extra copies of the two PPM disks.

The backup disks you've just made are copies of the information on **EXAMPLE**. But they aren't exact copies of the two original PPM disks.

You can't use disks created using Pascal Backup in the same way you'd use regular flexible disks. The information can only be used after you restore it to the ProFile using one of the Pascal Backup Restore options.

The next section of the tutorial shows you how to restore information to a hard-disk volume.

Q&A: "Do I use a different procedure to back up **EXAMPLE** if I have two disk drives?"

You would see only one difference when using two drives. When you're asked for the unit number of the drive you'll be using, you would specify unit #5, rather than #4. The blank disk would go into the second drive, rather than the first.

The same is true when you restore. If you use one drive, you must take out *PPM Program* and replace it with the first backup disk. If you have two drives you use the second drive for your backup disks.

Restoring is the process of transferring information stored in backup format, on a backup disk, to a hard disk in standard Pascal format.

Restoring a Hard-Disk Volume

Now that you've successfully created a backup copy of your hard-disk volume, you're ready to learn the procedure you'll use if you ever need to **restore** that information to its original hard-disk volume on the ProFile.

The backup disks you create with Pascal Backup use a different format for storing information than do regular Pascal disks. You can't use these disks directly, by putting them into a disk drive. When you go through the restore process you not only transfer the information from the backup disk to the ProFile, you also reorganize the information so that it is once again in standard Pascal format.

What You Do

- | | |
|------------|---|
| 1. Type R. | This selects the Restore Volumes, Files, or Areas option. The Restore Volumes, Files, or Areas display appears on the screen. |
|------------|---|
-

```
Pascal Backup Copyright 1983 Apple Computer, Inc. Version 1.0
-----
Restore Files, Volumes, or Areas

Press the first letter to select an option. Option?

LList backup directory
CConfirm Volume or File Replacement
FFiles, Restore selected files in a volume
VVolumes, Restore selected volumes.
P(Pascal Area) Restore the entire Pascal Area.
N(Non-Pascal) Restore the ProDOS Area.
D(Device) Restore the entire ProFile.
```

See Chapter 6, "Pascal Backup in Depth," for information on the List Backup Directory option.

The second option on the menu is `C(Confirm Volume or File Replacement)`. If you are restoring information to files or volumes that already exist on the ProFile, you have the option of choosing whether or not you want to replace each file or volume with the version on the backup set.

The default choice for this option is "Yes." If you instead choose not to confirm replacement, all of the files or volumes on the backup disks would automatically replace the existing information on the ProFile.

2. Type <code>F</code> to select the Restore Selected Files option.	The Restore Files display appears. You see a message asking you for the unit number you'll use for the restore process.
3. Type <code>4</code> to select drive 1. Press <code>(RETURN)</code> .	You see a message asking you to remove <i>PPM Program</i> from drive 1 and to insert the first disk of the backup set.
4. Remove <i>PPM Program</i> . Insert the backup disk labeled "PPM Backup: 1 of 2".	The disk drive whirs for a moment while it reads information from the disk. When the whirring stops, you see a display that lists the volumes from which files were taken for the backup. In this case <i>EXAMPLE</i> is the only volume listed.
5. Press <code>(→)</code> to select <i>EXAMPLE</i> .	You see the question <code>Restore which file(s)?</code> .
6. Type <code>=</code> to select all files on <i>EXAMPLE</i> . Then press <code>(RETURN)</code> .	Each file on <i>EXAMPLE</i> is displayed.
7. Press <code>(RETURN)</code> .	You see the Select Volumes display again. If the backup had included more than one volume you would now be able to choose other volumes, and other files, to restore.

8. Press (RETURN) again to begin the restore procedure.	You see the name of each file displayed on the screen, with a message stating that the file exists on the ProFile, and the question: replace it? [Yes/No] No.
9. For each file, type Y to respond "Yes."	After you've requested replacement of the file by responding "Yes," the file will be restored. You will see the same message for each file.
10. Type Y to answer "Yes" each time this message is displayed.	When every file from the first disk has been transferred you will see the message: Please insert disk 2 of backup in unit 4.
11. Remove the first disk and insert the disk labeled "Backup of PPM files: 2 of 2." Press the (SPACE) bar to continue.	When the remaining information on the second backup disk is transferred you see the message: Restored 12 of 12 files successfully.
12. Remove the second backup disk and replace it with <i>PPM Program</i> . Press the (SPACE) bar.	You return to the Pascal Backup menu.

The restore process copied each file on the backup disks directly over the original copy of the file that existed on EXAMPLE.

That's all there is to the restore process. If you ever lose any of the data on your ProFile, this is the procedure you use to transfer the information on your backup disks to the ProFile.

Deleting a Hard-Disk Volume

The steps you've just gone through to put the contents of the PPM disks on the ProFile, and to back up and restore those files, have been an example of how you'll use PPM with application programs.

Note for Pascal Programmers

If you're a Pascal programmer you'll want to create a volume that includes PPM to use as your Pascal system volume. However, you'll need to make it larger than EXAMPLE, and the Pascal system files must be in a different order. Go ahead and delete EXAMPLE, then see Appendix B for more information on using the Pascal system with the ProFile.

Removing Files From a Volume Using the Extended Filer

PPM won't let you delete a volume if it has any files in it. This is for your protection. You'll never have to worry about inadvertently losing information.

What You Do

- | | |
|---|--|
| 1. Type Q to select the Quit option from the Pascal Backup menu. | You return to the PPM Main Menu. |
| 2. From the PPM Main Menu, type X to select the Extended Filer. | You see the Extended Filer command line. |
| 3. Type R to select the Remove command. | You see the message: Remove what file? |
| 4. Type #91= . Press (RETURN) . | Each file on EXAMPLE is listed as it is removed. When all the files are removed you see the question: Update Dir?. |
| 5. Type Y . | You see the Extended Filer command line. |

The files have now been deleted from EXAMPLE.

Using the Volume Manager From the Extended Filer

If you select the Quit command from the Extended Filer command line, you will return to the PPM Main Menu. Many times when you use the Extended Filer you will want to go to the Volume Manager instead of returning to the PPM Main Menu. The Extended Filer provides a command, Use Volume Manager, that takes you directly to the Volume Manager.

What You Do

Type U to select the Use Volume Manager command.	You see the Volume Manager command line.
---	--

Using the Delete Command

Now that you have removed all of the files from EXAMPLE you can use the Volume Manager Delete command.

What You Do

- | | |
|--|--|
| 1. Type D to select the Delete command. | You see the message: Delete a volume... and an arrow will appear to the left of EXAMPLE on the Volume Manager display. |
| 2. Press → to select the volume. | The row in which information on EXAMPLE appears will be highlighted. You see the question Delete highlighted volume EXAMPLE (Y/N)? |
| 3. Type Y . | You see the question Krunch Pascal area (Y/N)? |
| 4. Type Y . | You see the message Krunching... flash briefly on your screen. Then you return to the Volume Manager display. |
-

See Chapter 4, "The Volume Manager in Depth," for information on the Krunch command.

Krunch is the command that consolidates unused space within the Pascal area. In this case, after EXAMPLE was removed, the Krunch command moved the volume directory back to its original location on the ProFile.



Warning

Be careful when using the Krunch command. This operation can take several minutes and you can lose information if the process is in any way interrupted. Never use the Krunch command if a power failure is likely, for example during an electrical storm or a brownout. Never turn off your system, touch the keyboard, or do a reset while using the Krunch command.

Notice that the volume EXAMPLE no longer appears on the Volume Manager display. You've successfully deleted it.

Wrapup

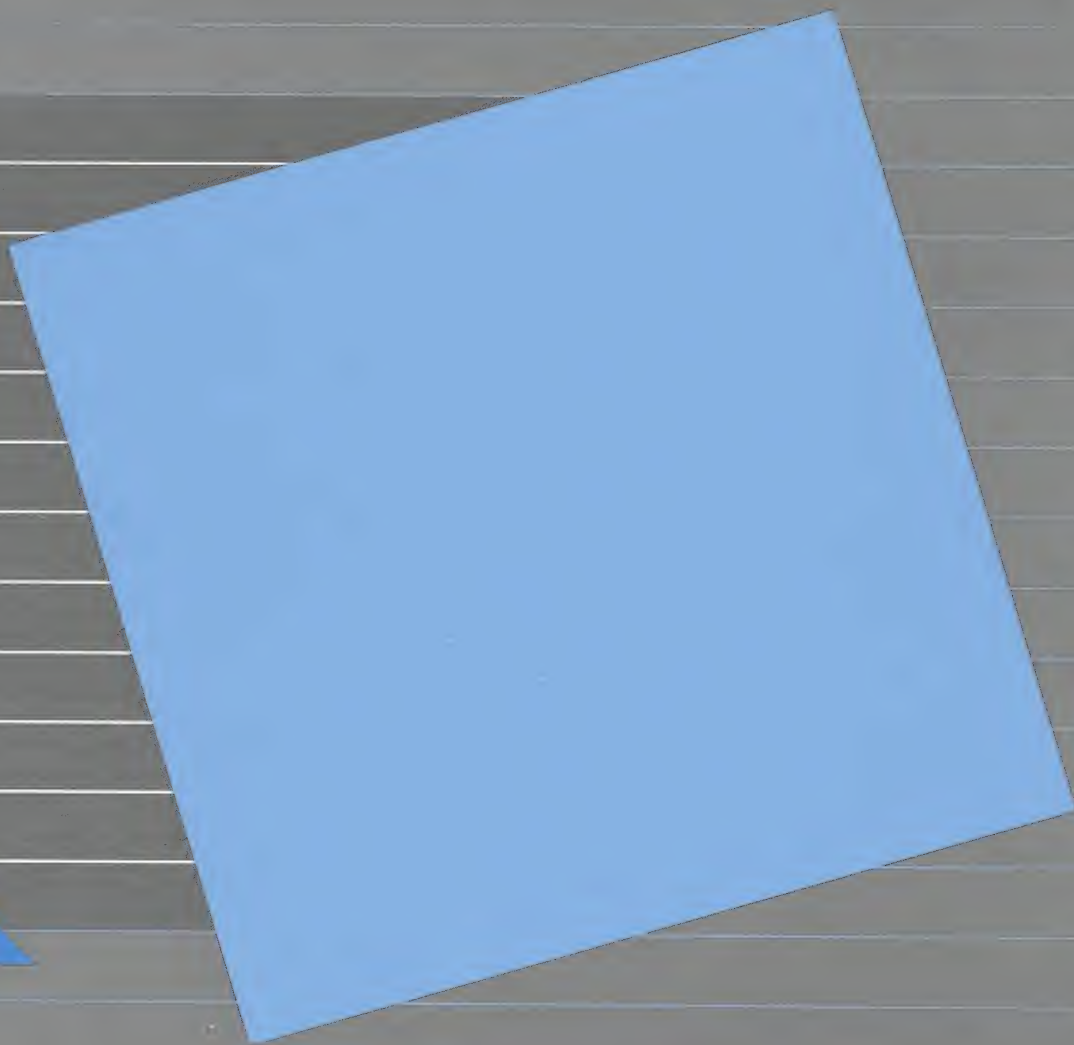
Congratulations! You've finished the PPM Tutorial. You should be fairly comfortable with the main PPM concepts—hard-disk volumes, units, backup, and restore.

You can use Chapters 3, 4, 5, 6, and 7 for reference. They contain summaries of all PPM functions. You can read these chapters now, or you may want to go to Chapter 7, "A Complex Example." This example will show you how you'll use PPM when you have both ProDOS files and several hard-disk volumes on your ProFile.

If you're still a little uncertain about some of these terms, be sure to read Chapter 4, "The Volume Manager in Depth."

Getting Started With PPM

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Getting Started With PPM

PPM is the tool you need to create and manage an area on your ProFile for Pascal files. You do this by following these steps:

1. Establish the Pascal area on the ProFile by using the Create option on the PPM Main Menu.
2. Create hard-disk volumes using the Create a Volume command of the Volume Manager.
3. Assign these volumes to Pascal units using the Assign command of the Volume Manager.

If you're using application programs with the ProFile, you copy information from flexible disks to the hard-disk volumes using the Extended Filer Transfer command.

Once you've begun using your hard-disk volumes, you can use the Pascal Backup option to create backup copies of the volumes on your ProFile.

Starting Up PPM

Follow these steps to start up PPM:

1. Insert the disk labeled *PPM Startup* in drive 1.
2. Turn on the computer or press **(CONTROL)-(RESET)**.

You see the message Insert boot disk with SYSTEM.PASCAL on it, then press RETURN.

3. Take *PPM Startup* out of drive 1. Insert the disk labeled *PPM Program*. Press **(RETURN)**.

You see the question Assign volumes to their default unit number?

4. If you are using PPM for the first time, answer "No" by typing N.

You see the message Loading Pascal ProFile Manager... The PPM Main Menu appears on the screen.

See the next chapter, "The Volume Manager in Depth," for information on assigning volumes to default units.

```
Pascal ProFile Manager      Copyright 1983 Apple Computer, Inc.   Version 1.0
-----
Type the first letter to select an option.  Option?

V(olume Manager program
X(tended Filer program
B(ackup program
C(reate a Pascal Area on the ProFile
D(elete a Pascal Area from the ProFile
Q(uit
```


The PPM Main Menu

There are six options on the PPM Main Menu. The Volume Manager, the Extended Filer, and Pascal Backup are explained in detail in the following chapters.

Before you can use any of these options you must use the Create option to establish the Pascal area on the ProFile.

Creating the Pascal Area

See the *ProDOS User's Manual* or the *ProFile Owner's Manual* for information on formatting the ProFile for ProDOS.

Your ProFile must be formatted for ProDOS before you can create the Pascal area.

To create the Pascal Area:

1. Start up PPM.
2. Select the option C(create a Pascal Area on the ProFile by typing C. You see the message: Create a Pascal Area... Create Pascal Area on which drive ? (Enter Number)C].

Below the message is a display showing all ProFiles attached to the system that do not have Pascal areas.

3. Type the drive number assigned to the ProFile on which you want to create a Pascal area and then press **(RETURN)**.

You return to the PPM Main Menu.

The Create option puts a Pascal volume directory on the ProFile. You can now go on to create volumes on the ProFile, using the Volume Manager option.

Deleting the Pascal Area

The fifth option on the PPM Main Menu is D(delete Pascal Area from the ProFile.

You may never need to use this command. You would only delete the Pascal area if you had been using the ProFile for both ProDOS and Pascal files and you then decided to use the entire ProFile for ProDOS.

To delete the Pascal Area:

1. Type **D** to select the Delete option from the PPM Main Menu.
2. If there are volumes in the Pascal area you see the message:

```
Do you wish to delete all volumes in the
Pascal Area (Y/N)?[D].
```

3. Answer "Yes" to erase all volumes and delete the Pascal area.

Quitting PPM

The last item on the PPM Main Menu is the Quit option. Generally when you use PPM you will go on to an application, using the steps outlined in Chapter 1, "Overview." You never have to use the Quit option. Selecting the Quit option takes you to the Pascal Operating System command line. Unless you have the Apple II Pascal system you cannot use these commands.

If you accidentally type **Q** and find yourself facing the Pascal command line, you can do one of two things.

- If you've finished working with PPM and you want to go on to an application: Take *PPM Program* out of drive 1 and insert the startup disk for your application. Press **(CONTROL)-(RESET)**.

```
Answer "Yes" to Assign volumes to their default
unit number?
```

- If you selected Quit before you finished your work with PPM: Take *PPM Program* out of drive 1 and insert *PPM Startup*. Press **(CONTROL)-(RESET)**. Answer "Yes" to Assign volumes to their default unit number? This will take you back to the PPM Main Menu. Your volumes will be exactly as you left them when you selected Quit.

Pascal programmers: If you create a volume for your entire Apple II Pascal system, following the steps in Appendix B, "For Programmers Only," you will use the Quit command to get to the Pascal command line after assigning the system volume to unit #4.

Using PPM With Applications

Every application program that can be used with PPM and the ProFile comes with instructions on how you create and use hard-disk volumes for that particular program.

The next chapters, “The Volume Manager in Depth” and “The Extended Filer in Depth,” give detailed information on how you use these PPM options to create volumes and copy information to them.

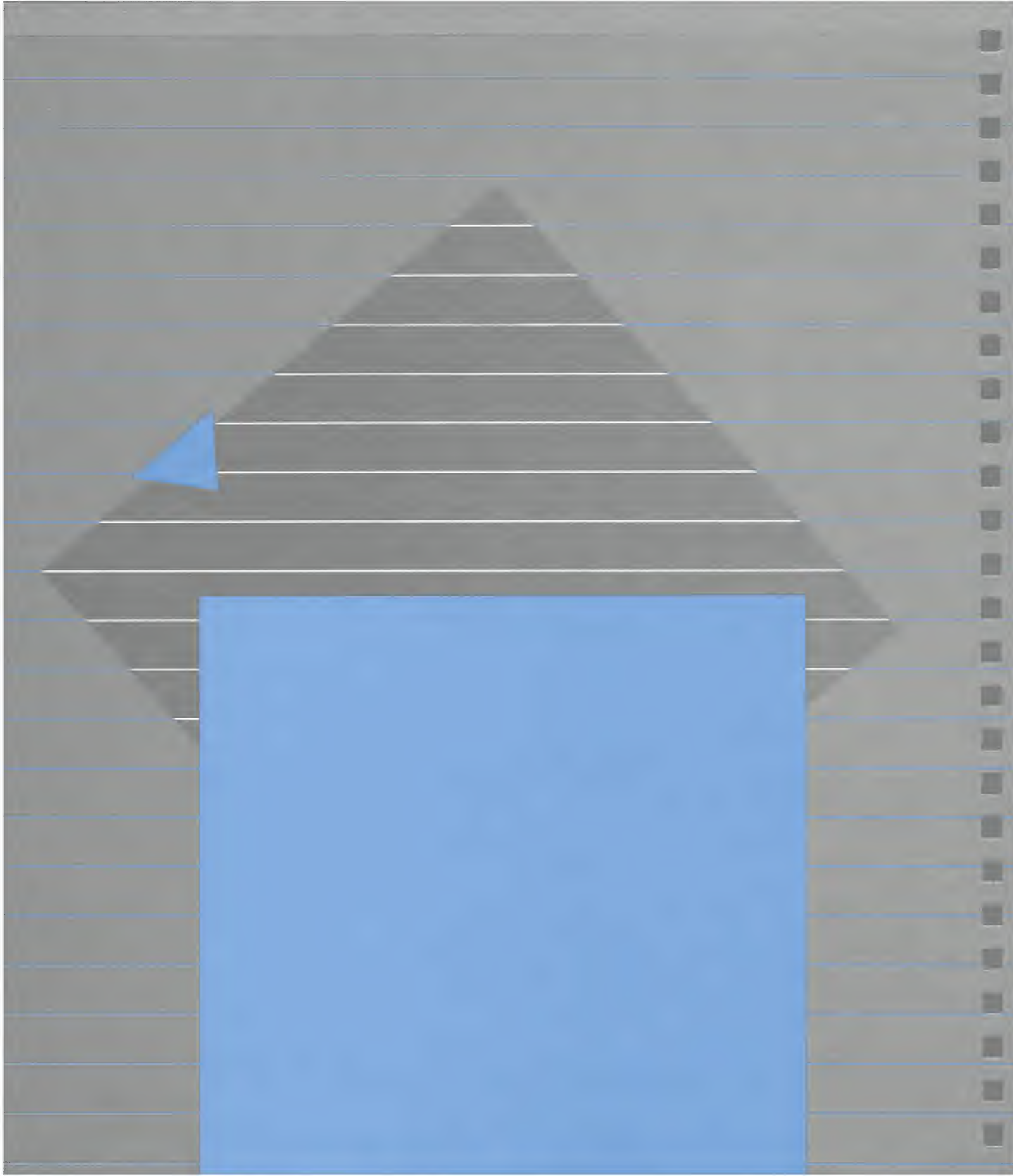
After you’ve followed the instructions that came with your application you’ll use the following procedure each time you use that application.

1. Start up PPM. Answer “No” to the question `Assign volumes to their default unit number?`
2. From PPM use the Volume Manager to assign the volumes you want to use to the units specified by the application manual.
3. After the volumes are assigned to the correct units, remove *PPM Program* and insert the startup disk for your application. Press **CONTROL**-**RESET**.
4. You will once again see the question `Assign volumes to their default unit number?` This time answer “Yes.”

Answering “Yes” leaves the volumes on the ProFile exactly as you left them after using PPM.

The Volume Manager in Depth

-
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 - 57** What Is a Volume?
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The Volume Manager in Depth

If you've gone through the tutorial in the preceding chapter, or if you've followed the instructions that came with your application program for installing it on the ProFile, you've used the Volume Manager portion of the PPM to create and delete hard-disk volumes. You've also used the Volume Manager to assign unit numbers to hard-disk volumes to make them available for use.

This chapter gives you more information on the Volume Manager and its uses. You'll find some examples here of how you use the Volume Manager to efficiently manage the storage space in the Pascal area of the ProFile.

A Few Definitions and Basic Concepts

Before you begin you need to understand what's meant by some of the terms used to describe the ways that Pascal manages files. In the tutorial, one of the first things you did was create a hard-disk volume.

What Is a Volume?

A volume is simply a place to store information. The volumes you're used to working with are disks. Each flexible disk represents 280 blocks of space. A five-megabyte hard disk is equal to about 35 flexible disks; a larger hard disk can store proportionally more information.

See "Guidelines for Determining the Size of Hard-Disk Volumes" later in this chapter.

The hard-disk volumes on your ProFile are exactly like flexible disks, with one exception. When you create hard-disk volumes on the ProFile, you're not limited to 280 blocks. You can make a volume as small as 6 blocks. (Although you'd never want to. Six blocks is only enough room for a directory that tells you what's in the volume but not enough room for anything else.) Or you can make a volume as large as all the currently available free space on the ProFile. That could give you a volume containing thousands of blocks.

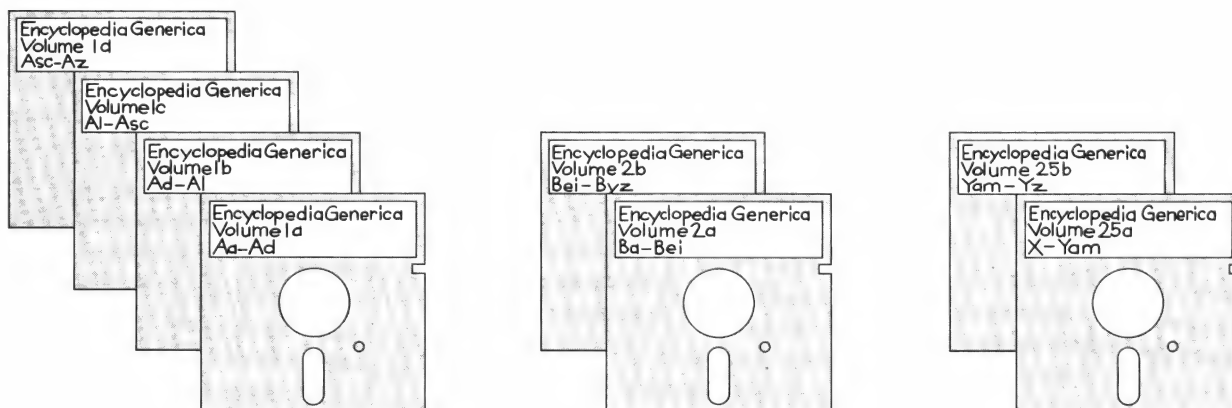
With PPM you can create up to 31 hard-disk volumes on your ProFile. You use them in the same way you use flexible disks.

Disks Versus the ProFile—An Example

Here's an example of how you could store the same information in different ways, using flexible disks, or using various-sized hard-disk volumes on the ProFile.

In the not-too-distant future, it may be possible to buy an entire encyclopedia in disk form. Figure 4-1 shows what your disks might look like.

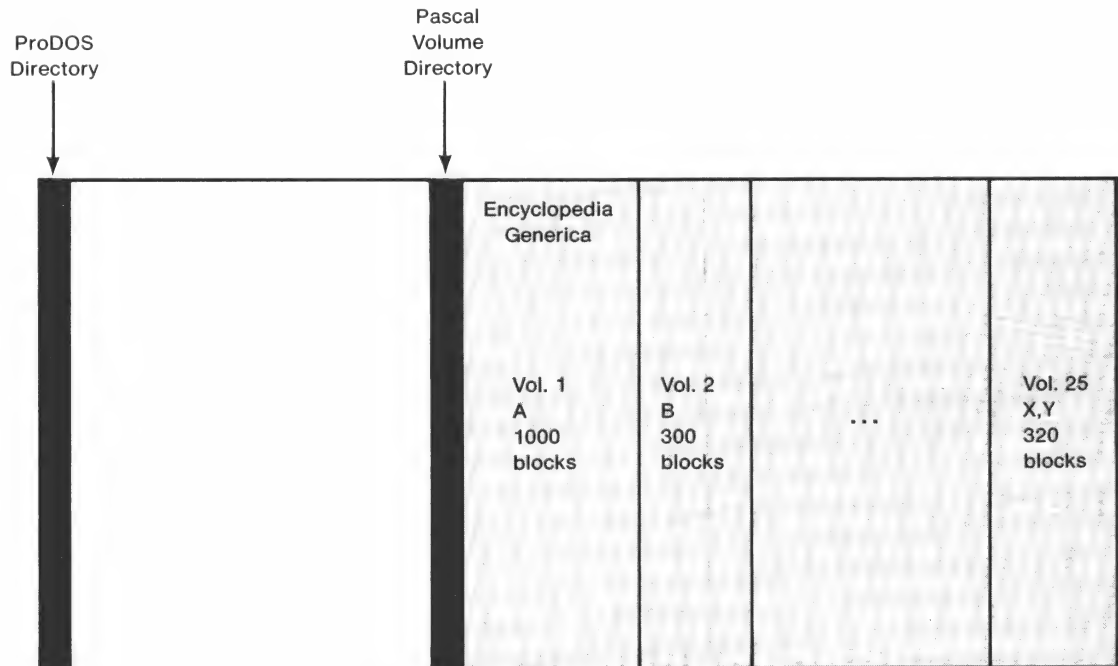
Figure 4-1. Information Stored on Flexible Disks



Because you're limited to 280 blocks of storage on each flexible disk, you'd find that it might take four disks for all the "A" information, while one disk might hold all of "X" and some of "Y".

If you transferred this information to a ProFile, you could create hard-disk volumes that would allow you to store the information as shown in Figure 4-2.

Figure 4-2. Information Stored on a ProFile Hard Disk



There are a lot of advantages to this system. You can store all of the data you use with one program on one large volume. If you're a programmer, you can store a long program in one volume, eliminating the need for disk swapping when you run it.

What Is a Unit?

After you've created a hard-disk volume, you still can't use it until you've assigned it to a unit. The easiest way to get used to the idea of the PPM units is to think of them as the equivalent of disk drives.

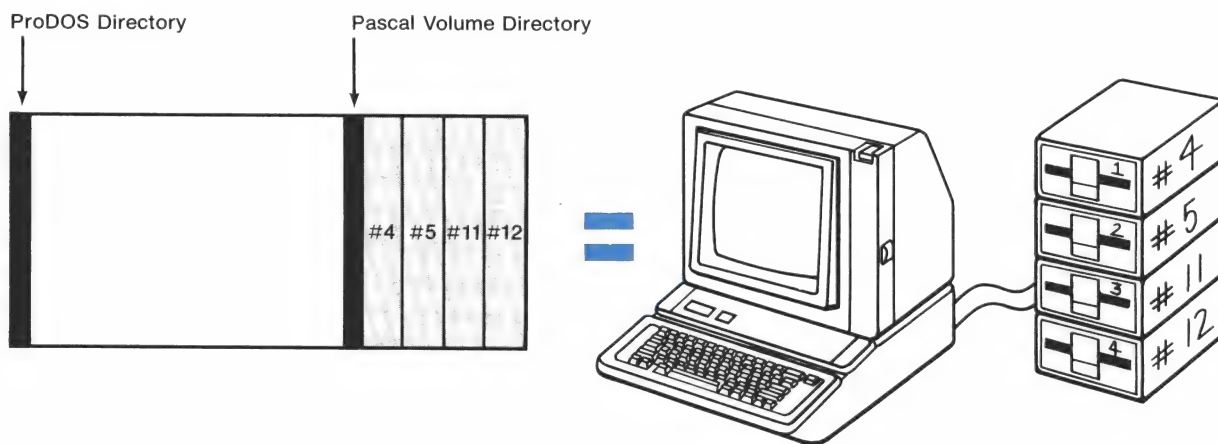
Units and Disk Drives

When you use flexible disks, you may have a dozen of them sitting in a disk holder on your desk, but if you have only two disk drives you can only use two of them at a time. You do this by putting a disk into your flexible-disk drive.

With PPM and the ProFile, assigning a volume to a unit is exactly the same as taking a flexible disk and putting it into a disk drive. When you release a volume from a unit, it's the same as taking a disk out of a disk drive.

If you have a ProFile with four volumes on it, all of which are assigned to units, you have the equivalent of four disk drives, as shown in Figure 4-3.

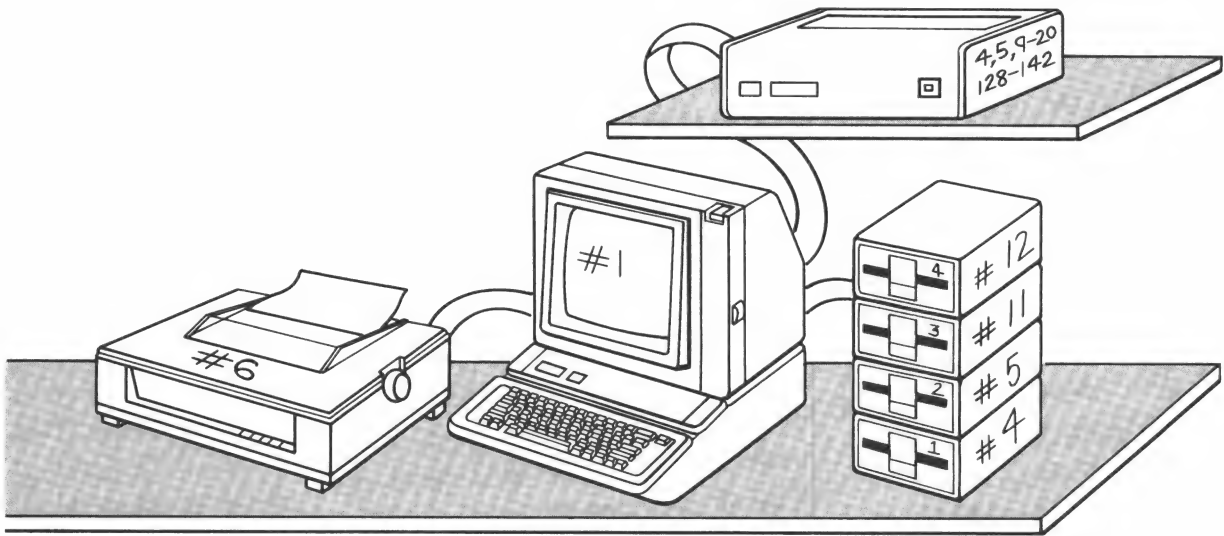
Figure 4-3. Hard-Disk Volumes Assigned to Units Equal Flexible Disks in Disk Drives



More Detailed Information on Units

Every piece of equipment that either sends information to or receives information from your computer is seen as a unit by the Pascal system. These units are referred to by number. The monitor, or other display device you use with your computer is unit #1. If you have a printer, it's unit #6. Standard unit assignments are shown in Figure 4-4.

Figure 4-4. Assignment of Units



Units #4, #5, and #9-#20 are the units you'll generally be using with hard-disk volumes.

If you're a programmer and you want to know more about using units #128-#143, see Appendix B.

Units #128-#143 can be used with hard-disk volumes, but only from within a program. You should only assign volumes to these units if you have an application that specifically tells you to in its manual. The application must contain special commands that make it possible to use the information associated with the unit number.

Units #4 and #5

If you have one flexible-disk drive attached to your computer, Pascal automatically assigns it to unit #4. A second disk drive is automatically assigned to unit #5.

If you use the Volume Manager to assign a hard-disk volume to unit #4, your first disk drive will automatically become unit #12. If you then assign a hard-disk volume to unit #12, you will lose the use of your disk drive until you release the hard-disk volume assigned to unit #4. Releasing #12 will not automatically reassign it to the disk drive.

Generally it's best not to use unit #4 or unit #5 for hard-disk volumes. Keep them free for your disk drives.

Q&A: "What if I'm using more than two disk drives?"

If you're using more than two disk drives the additional drives are assigned to the following units:

Controller card in slot 5

Drive 1—Unit #11
Drive 2—Unit #12

Controller card in slot 4

Drive 1—Unit #9
Drive 2—Unit #10

Programmers: See Appendix B for more information on using a hard-disk volume assigned to unit #4 as your system volume.

If you're using any of these disk drives you will lose the use of the those drives when you assign hard-disk volumes to any of these units. You won't be able to use these drives again until you release the hard-disk volumes.

Assigning Volumes to Default Units

When you start up PPM you see the question *Assign volumes to their default unit number?* You will see this question whenever you start up PPM or any application program that requires the use of PPM.

This message is asking if you want to use the same volumes, assigned to the same units, as you did the last time you used PPM or the application. It's as though you had left your program and data disks in their respective disk drives after you last used the application.

Here's an example of how this works. You sit down on Wednesday to work on your payroll. Your payroll program is stored in two volumes. The manual that came with the payroll program says that whenever you use the program you must assign the first volume to unit #9, and assign the second volume to unit #129. You start up PPM, answer "No" to the "Assign default units" question, then use the Volume Manager to make the unit assignments you need to work with your payroll program.

On Thursday you want to work with your Accounts Receivable program. It's also stored in two volumes, and its manual says to assign the first volume to unit #9 and the second volume to unit #10.

When you start up PPM, you once again answer "No" to the "Assign default units" question, then you would use the Volume Manager to assign the accounts receivable volumes to units #9 and #10.

If, however, you decided on Thursday to work on the Payroll again, you would answer "Yes" when asked if you wanted to assign volumes to their default unit numbers. This would give you the same volumes assigned to the same units that you used on Wednesday.

Here's the rule on how to answer the "default unit" question. If you want to work with exactly the same volumes as the last time you used PPM, answer "Yes." Otherwise, answer "No." Answering "No" releases all volumes on the ProFile from their units.

Volume Manager Structure

When you select the Volume Manager option from the PPM Main Menu, you will see the Volume Manager display.

```
Volume Manager          Copyright 1983 Apple Computer, Inc.      Version 1.0
```

```
-----  
A(ssign, R(elease, C(create, D(elete, W(prot, M(odify, K(runch, N(ext, Q(uit
```

```
ProFile drive: 0
```

WP Name	Description	Unit
---------	-------------	------

At the top of the display you see the Volume Manager command line. This lists all of the Volume Manager options.

To select a Volume Manager option, type the first letter of the command you want to use.

Underneath the command line is a directory listing for the Pascal area on your ProFile. This listing shows you the write-protect status, the name, the description, and the unit assignment of each volume on your ProFile.

See the next section for guidelines on how large to make your volumes.

Moving Around Within the Volume Manager

The last Volume Manager command is Quit. If you got to the Volume Manager by selecting it from the PPM Main Menu, typing **Q** will take you back to the PPM Main Menu.

If you got to the Volume Manager by selecting the Use Volume Manager command in the Extended Filer, then using the Quit command will take you back to the Extended Filer.

When you're using Volume Manager functions, you can always cancel a request by pressing **(ESC)**. The Escape key brings you back to where you were before you made your last selection.

Creating a Volume

Creating a hard-disk volume is the first step in organizing the Pascal area on your ProFile.

Each hard-disk volume is the equivalent of a flexible disk, with one exception. A flexible disk is always 280 blocks long, while a hard-disk volume can be anywhere from 6 blocks to the number of free blocks left on the ProFile.

To create a hard-disk volume, follow this procedure:

1. Select the Create command from the Volume Manager command line by typing **C**.
2. Type in the name of the volume. The name must begin with a letter, must be less than 8 characters long, and must not include these characters: dollar sign (\$), equal sign (=), question mark (?), comma (,), and any character generated by holding down **(CONTROL)** while typing another key.

You can type in lowercase letters, but they will be displayed in uppercase.

3. Type in the description of the volume. The description must be less than 16 characters long. You can use any printable character in the description, including lowercase letters.

You can have more than one volume of the same name, if each volume has a unique description.

4. Type in the size of the volume in blocks.

Guidelines for Determining the Size of Hard-Disk Volumes

If you are creating a hard-disk volume for an application, follow any guidelines provided by the application for the size of a volume.

Remember that you are limited to 31 volumes in the Pascal area of your ProFile. If you make your volumes too small, you may run out of volumes before you've used all the room on your ProFile.

If you have a five-megabyte ProFile, it contains about 10,000 blocks. If you use the entire ProFile for Pascal files, and you create 31 volumes, the average size will be about 320 blocks.

You cannot change the size of a volume once it's been created.

If you're using ProDOS files you may want to determine how much of your ProFile is used by ProDOS. See the *ProDOS User's Manual* for information on reading the ProDOS directory to determine the number of blocks used by ProDOS.

Recommendation: When you want to put a particular application program on your ProFile, you'll find that the manual for the program will give you specific instructions on how large to make each hard-disk volume. Be sure and follow these recommendations. If, as you become a more experienced user of the Pascal ProFile Manager, you find that generally you have more data for use with your programs than the average user, you may want to create volumes larger than the recommended size. If the opposite is true, you can make your volumes smaller.

Deleting a Volume

The Delete command removes a volume that doesn't contain any files from the ProFile. You must use the Extended Filer Remove command to remove files from a volume before the volume can be deleted.

To delete a volume:

1. Select the Delete command from the Volume Manager command line by typing **D**. You will see the message
`Delete a volume...`

The list of volumes will appear with an arrow to the left of the first entry.

See Chapter 5 for information on the Remove command.

2. Choose a volume for deletion by moving the arrow, using \uparrow and \downarrow , until the arrow is next to the name of the volume that you wish to delete.

If you have an Apple II Plus you use $\text{CONTROL}-\text{O}$ instead of the \uparrow and $\text{CONTROL}-\text{L}$ instead of the \downarrow .

When the arrow is in the correct position, press \rightarrow . The entire directory entry for the volume will be highlighted, and the message

```
Delete highlighted volume  
(volume name): (Y/N)?
```

will appear.

3. Type Y to delete the selected volume.

You will then see the message:

```
Krunch the Pascal area (Y/N)?
```

4. Type Y.

This will eliminate the unused space left by the volume you've just deleted.

More information on the Krunch command appears later in this chapter.

Assigning a Volume to a Unit

You must assign a hard-disk volume to a unit when you want to make it available for use. There are 30 units available for hard-disk volumes. These are numbered 4, 5, 9-20, and 128-143.

Units #128-#143 are only available for use from within programs. Unless you're a Pascal programmer, the only time you should assign volumes to these units is if one of your application programs specifically requires it.

The first section of this chapter introduces the idea of unit numbers.

Programmers—See Appendix B for more information on blocked device units versus user device units and on using unit #4 with a hard-disk volume.

The one time you don't have to worry about assigning volumes to units is when you use Pascal Backup. You can back up volumes even when they aren't assigned to units. You can also restore information to volumes that aren't assigned to units.





Recommendation: The first flexible-disk drive is generally assigned to unit #4, and the second disk drive is generally assigned to unit #5. Assigning hard-disk volumes to these units should be avoided.



Warning

If you have two volumes with the same name you must never have both volumes assigned to units at the same time. If you do, the Pascal system may mistake one volume for the other and you can lose information.

To assign a volume to a unit:

1. Select the Volume Manager option from the PPM Main Menu.
2. Select the Assign command from the Volume Manager command line.
3. Move the arrow to the left of the Volume Manager listing by using  and  until the arrow is pointing to the volume you want to assign to a unit number.
4. Press . This selects the volume.
5. Type in the unit number that you want the volume assigned to.
6. Press .

You'll see the unit number appear in the right column of the Volume Manager listing.

Changing unit assignments is simple. Even if a unit is already in use, using the Assign command automatically releases that unit.

For example, you might have one hard-disk volume assigned to unit #9, and the instructions for another application specify that you must assign one of the volumes used with that application to #9. To do this you would simply assign the volume you wanted to use to unit #9. This would automatically release the other volume.

Releasing a Volume From a Unit

Releasing a volume from a unit is the equivalent of taking a disk out of a disk drive.

Volumes are released automatically when the units they're assigned to are reassigned. This means that you will only rarely use the Release command.

However, if you have volumes assigned to units that are normally used with disk drives, you must use the Release command before the disk drives will be reassigned to their standard unit numbers.

To release a volume from a unit:

1. Select the Volume Manager option from the PPM Main Menu.
2. Select the Release command from the Volume Manager command line.
3. Move the arrow to the left of the Volume Manager listing by using and until the arrow is pointing to the volume you want to release from a unit.
4. Press .

You'll see the Volume Manager listing once again.

Modifying the Name or Description of a Hard-Disk Volume

The Modify command of the Volume Manager lets you change the name or description of any hard-disk volume. You cannot, however, use the Modify command to change the number of blocks allotted to a volume.

See the section "Units #4 and #5" earlier in this chapter.

You might want to use the Modify command if you're creating a second data volume for one of your programs. The description for the first volume might be DATA. You could give the second volume the description NEWDATA, then use the Modify command to change the first volume's description to OLDDATA.

Recommendation: If the instructions that came with your program gave specific names or descriptions for the volumes it uses, be cautious if you want to change them. The program may refer to the volumes by these specific names and if you change them, the program will be unable to find the volumes.

To modify the name or description of a hard-disk volume:

1. Type **M** to select the Modify command from the Volume Manager command line.

You'll see the message `Modify a volume...` and the list of current volumes. An arrow appears to the left of the first entry in the list.

2. Move the arrow, using **(↑)** and **(↓)**, until it is pointing to the name of the volume you wish to modify.
3. Press **(→)**.

The entry will be highlighted. You'll see the question: `What is the new name for this volume? RETURN for no change.`

4. If you want to change the name of the volume, type in the new name and then press **(RETURN)**.

If you want to keep the current volume name but change the description only, press **(RETURN)**.

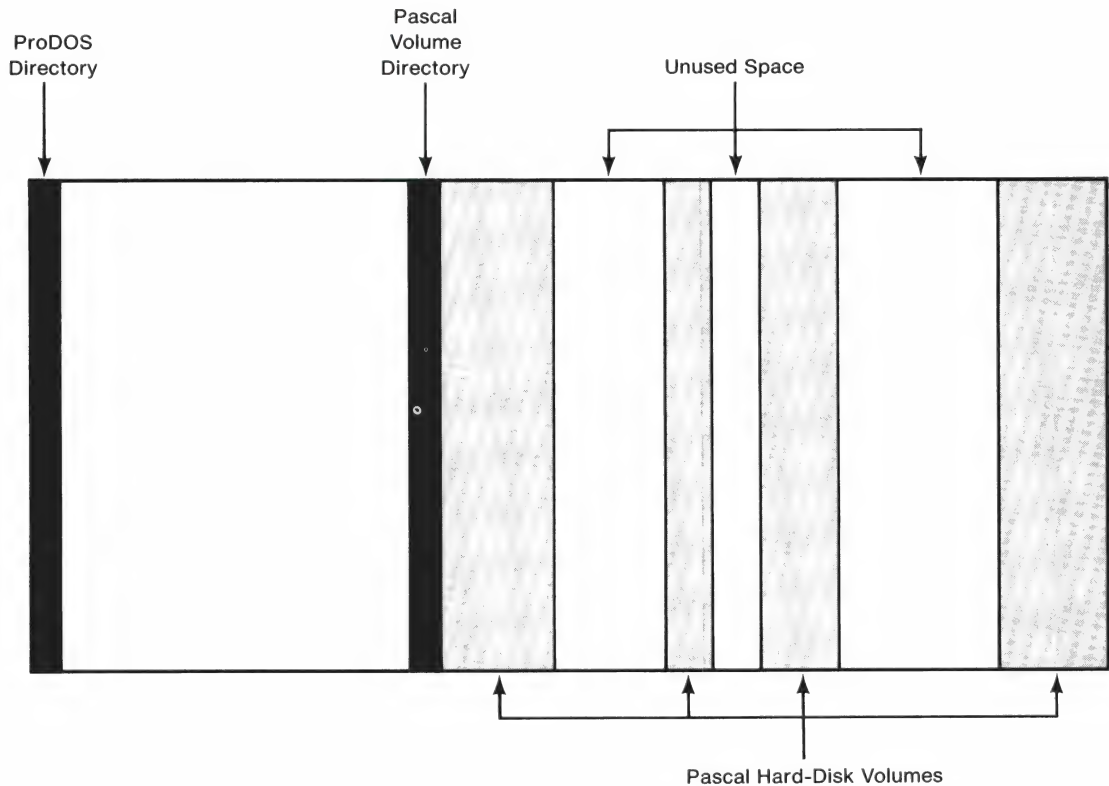
5. Type in the new description of the volume, or press **(RETURN)** to keep the current description.

If you have an Apple II or II Plus use **(CONTROL)-(O)** to move the arrow up and **(CONTROL)-(L)** to move the arrow down.

Using the Krunch Command to Consolidate Storage Space

Whenever you delete a hard-disk volume from the ProFile, it will leave an unused area on the disk. You can easily find yourself with several of these “holes” on your ProFile—none of which is large enough for the hard-disk volume that you want to create.

Figure 4-5. A ProFile That Needs the Krunch Command



The Krunch command consolidates all these small pieces of unused space and returns them to the portion of the ProFile that can be used by either Pascal or ProDOS.

Q&A: “Why is Krunch spelled with a *K* instead of a *C*?”

You may have noticed that generally you type the first letter in the name of a command when you want to use that command. There is another Extended Filer command that begins with *C*—the Change command. (This command is not used with PPM.) Having a Change command and a Crunch command resulted in a conflict that was resolved by changing Crunch to Krunch.



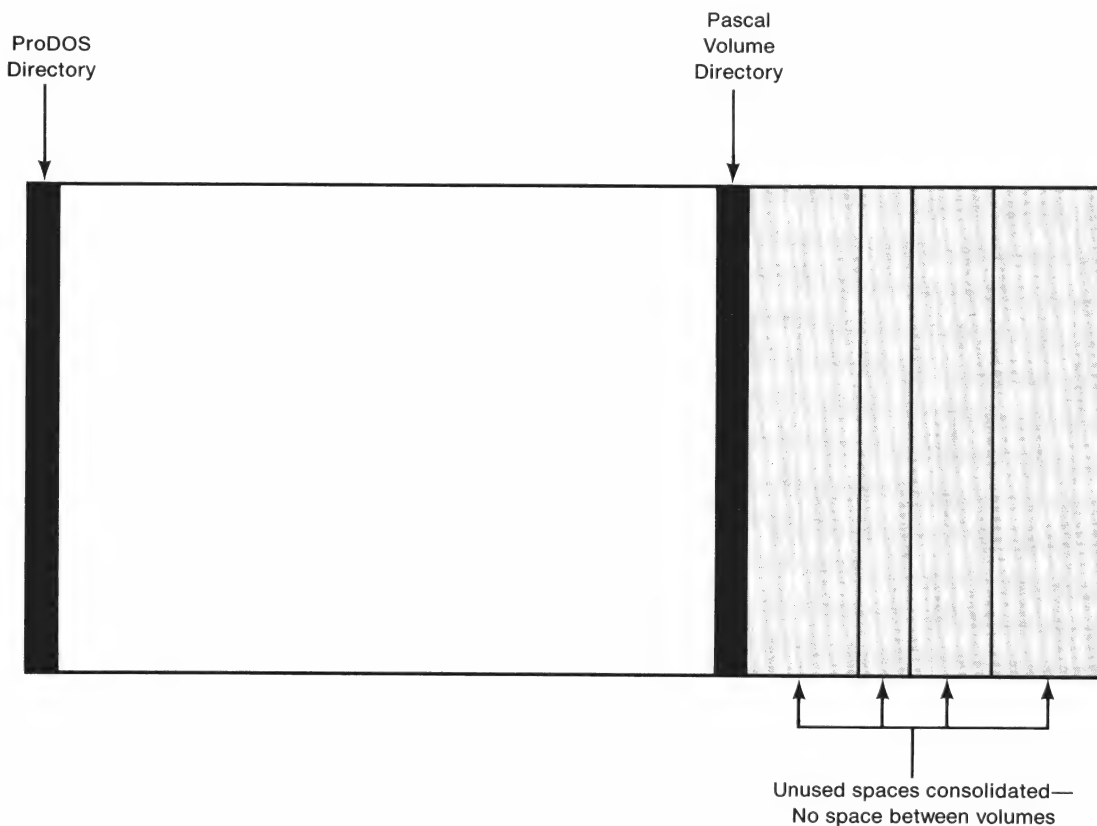
Warning

Be careful when you use the Krunch command. This operation can take several minutes and you can lose information if the process is interrupted in any way. Never use the Krunch command if a power failure is likely, for example during an electrical storm or a brownout. Never turn off your system, touch the keyboard, or do a reset while using the Krunch command.

Here are the steps you follow to use the Krunch command:

1. Select the Volume Manager option from the PPM Main Menu.
2. Select the Krunch command from the Volume Manager command line by typing K.
3. Type Y to answer "Yes" to the question Krunch Pascal Area? (Y/N)

Figure 4-6. Unused Space Consolidated After Using the Krunch Command



Write Protecting a Volume

Write protecting your volumes prevents them from being accidentally erased or changed. When you are working with flexible disks you write protect them by covering the write-enable notch on the right side of the disk with a small adhesive tab.

When you're working with hard-disk volumes you write protect them by using the Volume Manager Write Protect command.

To change the write-protect status of a volume:

1. Select the Write Protect command from the Volume Manager command line by typing **W**.

You will see the prompt `Change the write protection of a volume`. An arrow and a square cursor will appear to the left of the Name column of the Volume Manager display.

2. Move the arrow, using **(↑)** and **(↓)**, until it is positioned to the left of the volume you wish to write protect.
3. Select the volume that you wish to write protect by pressing **(→)**.

You'll see an asterisk in the left-most column of the volume list. This means that the volume is now write protected.

If you want to turn off write protection for a volume, you go through the same steps. The asterisk will no longer appear when you turn write protection off.

The Write Protect command is a **toggle** function: you can only turn it on or off.

Using the Next Command With Multiple ProFiles

If you have more than one ProFile attached to your Apple, you can only use the Volume Manager commands with one ProFile at a time.

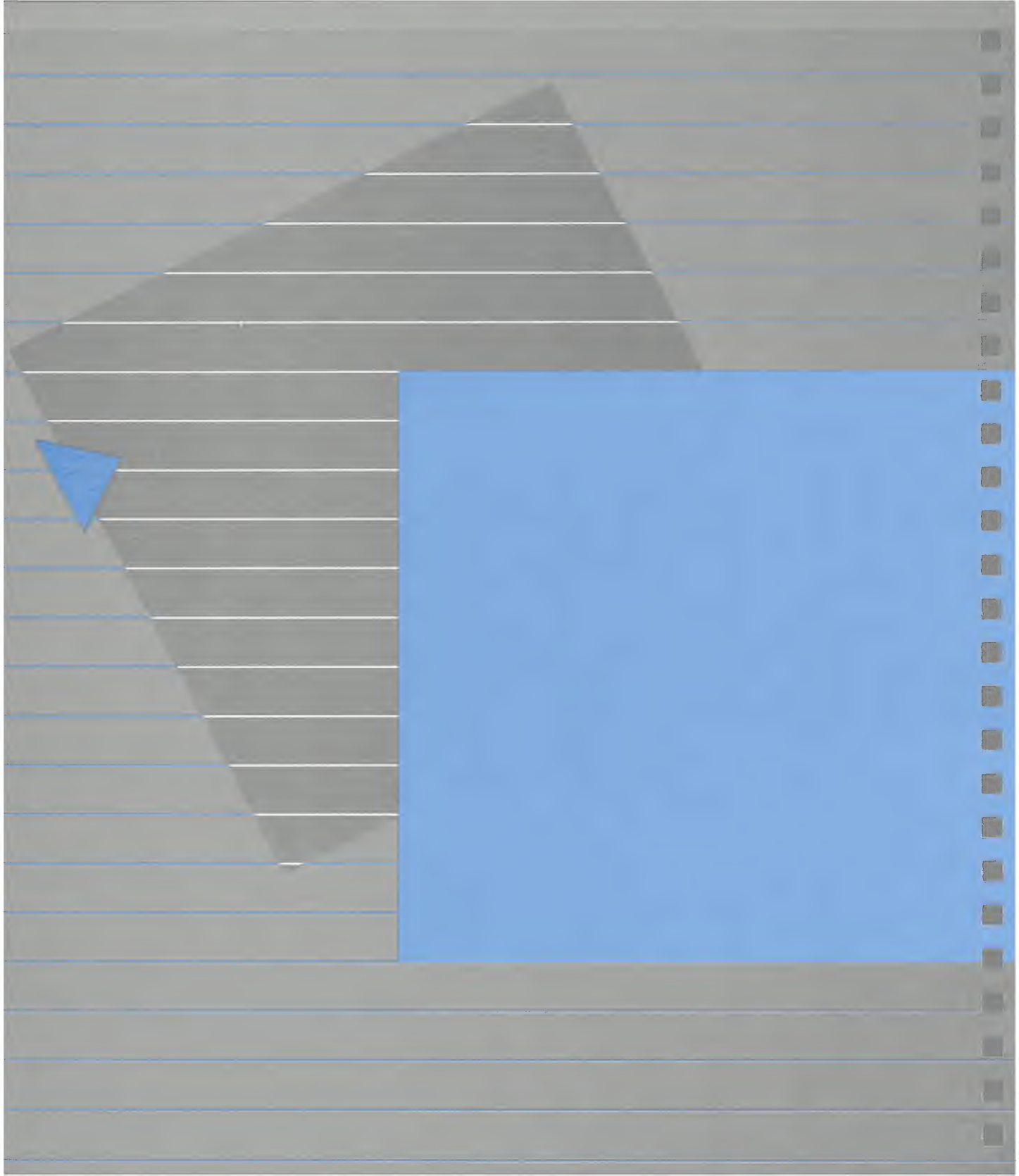
When you start up PPM, the ProFile assigned to drive 0 is automatically selected. Drive 0 is assigned to the ProFile attached to the interface card in the lowest-numbered slot. If you want to use a different ProFile you must first select that ProFile using the Next command.

If you have an Apple II or II Plus use **(CONTROL)-(O)** to move the arrow up and **(CONTROL)-(L)** to move the arrow down.

See Appendix C, "Using PPM With More Than One ProFile," for more information.

The Extended Filer in Depth

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The Extended Filer in Depth

The Extended Filer is the portion of the PPM you use to transfer the contents of flexible disks to the ProFile. It also includes commands to delete files from a volume, to show you directory listings of volumes, and to label each file in a volume with a date.

If you went through the tutorial in Chapter 2, you used the Extended Filer to transfer files to the ProFile, and then to show you the contents of the volume you created.

This chapter describes the Extended Filer commands that you use with PPM. You'll notice that the Extended Filer includes many other commands. These commands are used primarily by programmers. If you're an application program user, you won't need these extra commands. You'll find everything you need to know in this manual. However, if you're interested in learning about all of the Extended Filer functions, see your Apple dealer for a copy of the *Apple II Pascal Operating System Reference Manual* (Apple Product A2L0028). It explains all of the Filer commands in detail.

Programmers should see Appendix B, "For Programmers Only," for information on using the Extended Filer with the Apple II Pascal Operating System.



Warning

You can lose information on your ProFile if you experiment with the Filer commands. For example, the Zero command effectively erases the contents of a volume. Don't use the other Filer commands without reading the information in the *Apple II Pascal Operating System Reference Manual*.

Using Volume Names and Unit Numbers With Filer Commands

A volume must be assigned to a unit before you can use any of the Extended Filer commands with that volume.

Once a volume is assigned to a unit, the name of the volume and the unit number to which it is assigned are interchangeable. If a volume named PROGRAM is assigned to unit #9 it can be referred to as either PROGRAM: or #9:. The colon is important—a colon must always follow a volume name or unit number when you use Filer commands.

The Transfer Command

The Transfer command appears on the Extended Filer command line as `TTrans.`

The Transfer command makes copies of files. You used it in the tutorial to take files from your disk and copy them to the hard-disk volume that you created on the ProFile.

You can also transfer files between hard-disk volumes using this function.

Recommendation: Use caution when you transfer files from one volume to another. The program that uses the data in the transferred file may be unable to find it if you put it in a different volume. For example, if your application tells you to create a volume named DATA and assign the volume to unit #9, and you then change the name to WPDATA, the program may be unable to find it. Or, if you leave the name the same and assign it to a different unit number you may have the same problem.

Follow the instructions in the application's manual and be very careful if you decide to change anything.

Warning

Never transfer information between volumes that have the same name. In fact, you should never have volumes with the same name assigned to units at the same time, even though it is possible to have two (or more) volumes with the same name.

If you transfer files between volumes with the same name you can scramble your information or lose it entirely. Be careful.

You can always change the name of one of the volumes temporarily before you use the Transfer command. Then change it back when you've completed the Transfer operation.

Q&A: “When do I need to use the Transfer command?”

If you are using only application programs on your ProFile, you will use the Transfer command to copy your files to the ProFile and then possibly never need to use it again.

Here’s one situation in which you might use the Transfer command: If you filled your current data volume and then created a second data volume, you could use the Transfer command to copy files from the first volume to the second.

Using Wildcards With the Transfer Command

When you’re playing poker and deuces are wild, it means that a two can represent any other card. The two Pascal wildcards, equal sign (=) and question mark (?), work the same way in specifying filenames: They can represent any character or sequence of characters in a filename. Wildcards are often used as a shortcut to allow you to perform the same function on several files at once, instead of just one file.

Let’s say you want to transfer the novel you’re writing from a flexible disk to a ProFile hard-disk volume. You’ve written seven chapters so far, naming each of them CHAP1.TEXT, CHAP2.TEXT, and so forth. They’re stored on a flexible disk, which has the volume name NOVEL, that you’ve placed in your first flexible-disk drive. You want to transfer them to the hard-disk volume you’ve named NOVEL2 and assigned to unit #16.

You can transfer your chapters to the hard-disk volume in one of two ways. You can copy one file at a time, repeating the Transfer command for each file. Or you can transfer all of the files from your flexible disk with one Transfer command, by using wildcards.

Remember, you should never transfer information between two volumes of the same name.

Using the Equal Sign (=) Wildcard

Here's how wildcards could be used in this situation. When the prompt `Transfer which file?` appears on the screen, you would type

```
NOVEL:C=.TEXT or
```

```
#4:C=.TEXT
```

to specify all filenames beginning with `C` and ending in `.TEXT`, regardless of what came between `C` and `.TEXT`. The result? Every chapter of the novel would be copied after giving the Filer one command instead of seven.

After you press `(RETURN)` you see the question `To where?` Type in the unit number or the name of the volume that you want to receive the copied information. If you wanted to transfer the files in the above example to a volume assigned to unit #16 you would type `#16:C=.TEXT`.

Here are two important points to remember about the use of wildcards:

- Be as specific as possible when using a wildcard. If, in the example above, there was also a file named `CARBON` on the disk, it would have been transferred too, even if the intent had been to transfer only the files containing chapters. The solution? Instead of `#4:C=.TEXT` you would type in `#4:CH=.TEXT`.
- You must use the same wildcard, in the same way, when specifying the destination of the files. If your source specification is `C=.TEXT` then the destination specification must also be `C=.TEXT`. Only the volume name or unit number changes.

Using the Question Mark (?) Wildcard

The other wildcard is the question mark (?). You use it in the same way you use the equal sign (=), but you get slightly different results.

If you repeated the process above, using the question mark (?) instead of the equal sign (=), after you specified the destination for the files and pressed **(RETURN)**, you would see this message:

```
Transfer NOVEL:CHAP1.TEXT Y/N?
```

You can also use the two wildcards when specifying files and volumes for backup. See Chapter 6, "Pascal Backup in Depth," for more information.

If for some reason you didn't want to copy CHAP1.TEXT, you could answer "No" by typing N. The question mark (?) wildcard lets you approve each file before you transfer it.

General Transfer Procedure

To use the Transfer command:

1. Select the Transfer command from the Extended Filer command line by typing T.
2. You see the question Transfer what file?
3. To transfer an entire volume, type in the volume name, or the unit number to which the volume is assigned, followed by a colon. For example,

```
#9: or APRIL:
```

To transfer a file, type in the volume name, or the unit number to which the volume is assigned, then a colon, followed by the complete file name. For example,

```
#9:LETTERS.TEXT or APRIL:LETTERS.TEXT
```

You can find the complete name of your file by using the Extended Directory or List Directory commands.

4. Press **(RETURN)**. You see the question To where?
5. Type in the destination using the format described above, then press **(RETURN)**.

The Remove command appears on the Extended Filer command line as `R<em`.

The Remove Command

You use the Remove command to remove files from volumes. If you ever need to delete an entire volume from the ProFile, you will need to use Remove first. PPM will not delete a volume that contains files—even if the files are empty.

You can use wildcards with the Remove command in the same way you use them with the Transfer command.

Follow these steps to delete a file using the Remove command:

1. Start up PPM.
2. From the PPM Main Menu, type `X` to select the Extended Filer.
3. Type `R` to select the Remove command.
4. You'll see the prompt `Remove what file?` Type the unit number assigned to the volume where the file is located, then the filename. The filename must be complete. It must include any suffix such as `.DATA` or `.CODE`.

For example: `#9:PPM.code`

5. Press `(RETURN)`.

You'll see a message confirming that the file you specified has been deleted and asking you if you want to update the directory. Type `Y` to update the directory.

The List Directory and Extended Directory Commands

The List Directory command appears on the Extended Filer command line as `L<dir`. The Extended Directory command appears on the command line as `E<dir`.

List Directory and Extended Directory are the Extended Filer commands that show you directory listings for your hard-disk volumes. Both of these commands give you information on each file in a volume.

The List Directory command displays a listing that contains the names of each file in the volume, the number of blocks in each file, and the date each file was last modified.

You'll also see general information at the bottom of the listing on how many files are on the volume, how many files are listed in the directory, how many blocks are unused, and how many blocks are in the largest available free space.

```

File: G(et, S(ave, W(hat, N(ew, L(dir), R(em), C(hng, T(rans, D(ate, Q(uit [1,2]
EXAMPLE:
SYSTEM.LIBRARY      3  3-Oct-83
SYSTEM.MISCINFO     1  3-Oct-83
SYSTEM.FILER        55 3-Oct-83
SYSTEM.APPLE        32 3-Oct-83
SYSTEM.PASCAL       43 3-Oct-83
SYSTEM.STARTUP      2  3-Oct-83
FILER.CODE          2  3-Oct-83
BACKUP.CODE         2  3-Oct-83
ATTACH.DATA         1  3-Oct-83
ATTACHUD.CODE       14 3-Oct-83
SYSTEM.ATTACH       10 3-Oct-83
ATTACH.DRIVERS      13 3-Oct-83
PPM.CODE            42 3-Oct-83
13/13 files (listed/in-dir); 226 blocks used, 54 unused, 54 in largest

```

To list a directory:

1. Start up PPM.
2. Select the Extended File from the PPM Main Menu.
3. Type L to select the List Directory command.
4. When you see the prompt Dir listing of what vol?, type in a number sign ((SHIFT)-(3)) and the unit number of the volume you want to see listed.

The Extended Directory command gives you additional information on each file. The Extended Directory command shows you the same information you see with the List Directory command, plus the number of the block where the file begins and the number of bytes used in the last block of each file. This number is almost always 512.

Filer: G(et), S(ave), W(hat), N(ew), L(dir), R(em), C(hng), T(rans), D(ate), Q(uit) D1.21
EXAMPLE:

SYSTEM.LIBRARY	3	3-Oct-83	6	512	Datafile
SYSTEM.MISCINFO	1	3-Oct-83	9	192	Datafile
SYSTEM.FILER	55	3-Oct-83	10	512	Codefile
SYSTEM.APPLE	32	3-Oct-83	65	512	Datafile
SYSTEM.PASCAL	43	3-Oct-83	97	512	Codefile
SYSTEM.STARTUP	2	3-Oct-83	140	512	Codefile
FILER.CODE	2	3-Oct-83	142	512	Codefile
BACKUP.CODE	2	3-Oct-83	144	512	Codefile
ATTACH.DATA	1	3-Oct-83	146	32	Datafile
ATTACHUD.CODE	14	3-Oct-83	147	512	Codefile
SYSTEM.ATTACH	10	3-Oct-83	161	512	Codefile
ATTACH.DRIVERS	13	3-Oct-83	171	512	Datafile
PPM.CODE	42	3-Oct-83	184	512	Codefile
<UNUSED>	54		226		

13/13 files (listed/in-dir), 226 blocks used, 54 unused, 54 in largest

Using Wildcards With the Directory Commands

You can use the two Pascal wildcards with the directory listing commands to request a listing of files that fall into specific categories. For example, you might want to see a listing of all the code files on the volume assigned to unit #9. In response to Dir listing of what vol? type

```
#9:=.code
```

The listing you received would show only the files ending in .code. The information line at the bottom of the listing would show that you've listed only selected files. If there were 21 files on the volume, and only 5 of them were code files, the information line would begin 5/21, telling you that you're seeing directory information for only 5 of the 21 files on the disk.

If you want to know the number of unused blocks on a volume you must list every file on the volume. If you list only selected files the number of unused blocks will be incorrect.

Q&A: "Why would I need to use these directory commands?"

You might not ever have to worry about the contents of your volumes. Many application programs have file-handling commands built in. You'll be able to use the files on your volumes without ever having to worry about how the space on the volume is being allocated. In that case, you might not ever need the two directory listing commands. But if for any reason you ever need to see the contents of a volume, these two commands are here for your use.

The Date Command

Before you work on your Pascal files each day, use the Date command to set the date. Although an Apple is a versatile machine, it isn't equipped with an electronic calendar. You must use the Date command to give the Filer the correct date. After you've done this, each file you work on that day will appear in the directory listing with that date listed. That way you will always know the last date that a file was changed.

To set the date:

1. Start up PPM.
2. Type `X` to select the Extended Filer from the PPM Main Menu.
3. Type `D` to select the Date command.
4. You'll see a display showing you information on the format you must use to give the Filer the correct date. You'll also see the current date setting.

Under this information you'll see the prompt `New date?`

Type in the correct date using the format specified. For example:

`23-Feb-83`

If you have a special calendar board for the Apple II it may be unable to communicate with the Pascal system.

The Quit command appears on the Extended Filer command line as `QQuit`. The Use Volume Manager command appears as `UUse-Vmgr`.

Leaving the Extended Filer

When you're finished using the Extended Filer you can leave in one of two ways:

- If you want to go back to the PPM Main Menu, type `Q` (the Quit command).
- If you want to go to the Volume Manager, type `U` (the Use Volume Manager command).

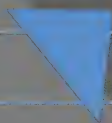
If you go to the Volume Manager from the Extended Filer by using the Use Volume Manager command, you will return to the Extended Filer when you use the Volume Manager Quit command.

When you go to the Volume Manager directly from the PPM Main Menu, using the Quit command returns you to the Main Menu.

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Pascal Backup in Depth

What happens to your Accounts Receivable data disk if you accidentally use it as a coaster for your coffee cup one morning? If you've been using flexible disks with your computer for a while, you know the answer to this question: you get out the backup copy you keep updated in case of just such an emergency and continue with your work.

You can have similar problems when you're working with a hard disk. What happens if there's a power outage during your monthly payroll update? Same problem, same solution: Make sure you have backup copies of all important information.

Backing up a hard disk is a slightly different process than backing up flexible disks. One ProFile can store as much information as 35 or more flexible disks. If you're backing up a volume that's 500 blocks long, Pascal Backup will transfer the first 280 blocks to one disk, and then ask you to insert a second disk to complete the backup. If block 280 is in the middle of a file, even in the middle of a word, there's no problem: Pascal Backup keeps track of the correct order of information on your volumes.

If you want to back up the entire ProFile, Pascal Backup will prompt you through all of the necessary disk swapping. And if the unfortunate day comes when you actually need the information on the backup disks, you can use the Pascal Backup Restore option to transfer the information on your backup copies to the ProFile.

Relationship to Backup II

Your ProFile Accessory Kit includes Backup II, a backup program for ProDOS files. The *Backup II User's Manual* includes general information on the backup process, guidelines on establishing a backup schedule, and other pointers on using a backup program.

If you will be using both ProDOS and Pascal based programs, you will need to learn to use both Backup II and Pascal Backup. Read the *Backup II User's Manual* first. Once you have learned that process, you can return to this chapter of the PPM manual for specific information on Pascal Backup.

If you will be using only Pascal files, go through the tutorial in Chapter 2, if you haven't already. The tutorial includes the procedure for backing up all the files on a volume and it will give you a feel for the Pascal Backup process. When you've finished, return to this chapter for more specific information on other backup procedures.

Q&A: "I'm familiar with the Pascal Filer and the process of copying files. Can't I use that procedure for making backup copies?"

If you have only a small number of Pascal volumes and files, and they rarely exceed 274 blocks, you may find it easier to use the Filer for backup. However, once you take advantage of the extra storage space on the ProFile by creating larger volumes and files, it's more difficult to use the Filer for backup.

Differences Between Backup II and Pascal Backup

The major difference between backup for ProDOS files and backup for Pascal files is that ProDOS organizes groups of files by subdirectories, whereas Pascal uses volumes. Keep this in mind as you read the *Backup II User's Manual*.

Another difference is that when you use Backup II to back up your ProDOS files, you can choose to back up only files that have been changed since the last backup session. Pascal Backup does not include this capability.

Q&A: "I'm using both ProDOS and Pascal files. What kind of backup scheme should I use?"

You'll find that using Backup II for ProDOS files and Pascal Backup for Pascal files and volumes will give you the most flexibility. However, if you use one type of file much less than the other—say your ProFile is 85% Pascal and 15% ProDOS—you'll save time by using only the type of backup that's meant for the majority of your files. See the *Backup II User's Manual* for information on using Backup II with the Pascal area.

Using Backup II to Back Up the Pascal Area

You can use Backup II to do a “bulk” backup of the Pascal area. This means that you can copy the entire area using Backup II, but not individual volumes or files.

Using Backup II to back up the Pascal area offers less flexibility than Pascal Backup. The process of restoring the Pascal area in case of an emergency can be complicated.

Differences Between Backup Disks and Regular Disks

The disks that Pascal Backup produces aren’t formatted in the same way as other Pascal disks. You won’t be able to put one in a disk drive and use it directly. To use the information on the backup disks you must first restore it to the ProFile using the Backup Restore option.

All you need to begin backing up your Pascal volumes are lots of blank flexible disks. You don’t have to format them first. Pascal Backup includes the ability to format disks when you select any of the Backup options. A five-megabyte ProFile can store the equivalent of 35 flexible disks. Larger hard disks can store proportionally more. If your Pascal area takes up about half of a five-megabyte ProFile, you may need as many as 18 flexible disks to perform a backup of the entire area.

Recommended Backup Procedure

Pascal Backup gives you several methods for backing up your Pascal information. Here’s the one that will give you maximum flexibility with minimum time and effort.

1. Keep programs and data in separate volumes. When you copy any program disk to the ProFile, you’ve automatically created an extra copy. Put the original disk in a safe place. You never have to use Pascal Backup for program volumes because the information in these volumes won’t change and you have the original disk from which to re-create the program volumes if necessary.
2. Use Pascal Backup on a regular basis for all data volumes. The frequency depends upon how much you work with your computer. If you work with your data all day, every day, you may want to back up at least once a day. If you only put in a few hours a week, back up once a week.

See the end of this chapter for additional pointers on backing up your Pascal area.

Pascal Backup Menu Structure

When you select Pascal Backup from the PPM Main Menu, you see the Pascal Backup menu.

```
Pascal Backup          Copyright 1983 Apple Computer, Inc.   Version 1.0
-----
Press the first letter to select an option.  Option?

SSelect a ProFile for Backup/Restore.  Current Drive is 0.

BBackup Files, Volumes, or Areas

RRestore Files, Volumes, or Areas

QQuit
```

Written by Naru Enterprises, Inc.

Selecting a ProFile for Backup/Restore

The first option on the Pascal Backup Main Menu is SSelect a ProFile for Backup/Restore. This option allows you to switch between ProFiles if you have more than one.

If you have only one ProFile you don't have to go through the steps to select the drive you'll be working with. The Select ProFile option is automatically set to drive 0. If you have more than one ProFile, drive 0 is assigned to the ProFile whose interface card is in the lowest-numbered slot.

See Appendix C, "Using PPM With More Than One ProFile," for more information.

Backing Up Files, Volumes, or Areas

When you select the Backup Files, Volumes, or Areas option from the Pascal Backup menu, you see that you have several options:

- You can back up individual Pascal files.
- You can back up Pascal hard-disk volumes.
- You can back up the entire Pascal area.
- You can back up the entire ProDOS area.
- You can back up the entire ProFile.

Q&A: “Should I back up my volumes by file, or by volume?”

When Pascal Backup backs up by file, only files are copied, and not the unused spaces between the files. But when you back up by volume, everything on the volume is copied, including the unused space. If you back up entire volumes by file, you won't need as many disks for backup. You won't be storing the empty space on your volumes.

However, if you ever need to restore the entire contents of the ProFile, and you've been backing up by file, you will have to go through one extra step to restore your files. You will have to re-create the volumes in which the files were stored.

If you had been backing up by volume, Pascal Backup would automatically create the volumes on the empty ProFile during the Restore process.

Specifying Additional Backup Information

The procedure for each of the backup selections varies, but they all have one thing in common. After you've selected the files, volumes, or areas that you want to back up, you must provide some additional information before backup can begin.

- You must specify which disk drive you're using as a destination for the backup.
- You must specify whether or not you want to verify that each backup disk is readable after you've transferred information to it.
- You must specify a destination for the backup listing that Pascal Backup provides. If you back up files, you receive a list of all files backed up. If you back up volumes, areas, or the entire ProFile, you receive a list of volumes.
- You can provide an identifying comment. For example, `Payroll backup, December 14, 1983, 10:00 a.m.` The comment is optional. Whatever comment you supply will be copied to each backup disk.

See Chapter 4, "The Volume Manager in Depth," for information on unit numbers and how they're used with disk drives.

Backing Up to Which Unit Number?

You must specify which disk drive you are using for your backup. You do this by typing in the unit number to which the disk drive is assigned. Generally this will be either drive 1 (#4), or drive 2 (#5).

The default choice (the one you make automatically by pressing **RETURN**), is the first drive, unit #4.

Q&A: "What happens if I accidentally give a unit number that doesn't have a flexible-disk drive assigned to it?"

Don't worry—Pascal Backup will display an error message and let you choose again.

Special Considerations for One-Drive Systems

If you have only one flexible-disk drive attached to your Apple you must use that drive for your backup disks.

If you specify #4 as the unit number you're using for backup you'll see a message asking you to remove *PPM Program* from that drive. You will then be able to use it for your backup disks.

When backup is complete you must remove the last disk in the backup set from the disk drive and reinsert *PPM Program*. You cannot return to the PPM Main Menu if *PPM Program* is not in drive 1.

Verifying the Destination Disk

You must specify whether or not you want to verify that each flexible disk you'll be using to store your backup copies is readable after information is transferred to it.

The default choice is to verify the readability of the disks.

If you get a read error on disk 14 of a 28-disk backup, don't worry. You have the option of trying another disk or of even changing disk drives.

Recommendation: It's a good idea to make sure the disks you've entrusted with your important information are readable. It's unlikely, but possible, that a disk will prove unreadable right after backup. Always choose to verify readability.

Destination of the Listing

You must specify a destination for the backup listing that Pascal Backup provides. If you are performing a file backup you will receive a list of all files copied to backup disks. If you are performing any other type of backup you will receive a list of all volumes copied to backup disks.

The default is CONSOLE:. CONSOLE: refers to the display device attached to your Apple II—either a monitor or a television set. If you select CONSOLE: by pressing (RETURN) the list of files or volumes will be displayed on the screen as the backup takes place.

If you would also like a printed listing or you would like to save the listing in a file, there are two other options available: You can send the listing to a printer (by specifying #6: or PRINTER:), or you can send the listing to a file. The file can be anywhere, except on a volume that is being backed up during the current backup session.

When you specify a file as the destination for your listing, you must use this format:

Volume name or unit number:file name

You might want to include the date in a filename. For example, if you were doing a backup on May 19th, you could call the file B5.19. You could send it to a volume which you have named BLIST, for “backup listings.”

If BLIST is assigned to unit #9, you could use one of the following two formats to specify which file to send the listing to:

#9:B5.19 or BLIST:B5.19

When a volume is assigned to a unit, the volume name and the unit number are interchangeable.

The colon between the volume name and the file name is a delimiter. A delimiter separates two pieces of information, in this case the volume name and the filename. The filename can be a maximum of ten characters.

The backup listing will be sent to the printer or the specified file at the end of the backup process.

The Backup Comment

You can provide an identifying comment. For example:
Payroll Backup, December 14, 1983, 10:00 a.m.
This comment is copied to each disk in the backup set.

When you use the backup set to perform a restore, the comment will be displayed before you select files or volumes.

The comment field is optional. If you don't want to supply a comment, press **(RETURN)** to continue with the backup.

Backing Up Selected Files

When you choose the Backup Selected Files option the first thing you see is a list of all volumes on your ProFile. You choose files to back up by first selecting the volume that contains those files.

Selecting Volumes for File Backup

The first thing you must do when backing up selected files is to choose the volume that contains the files. When you choose the Backup Selected Files option, you see a display similar to the one below. The illustration shows the Volume Selection display you would see if your ProFile contained four volumes named VOL1, VOL2, VOL3, and VOL4.

```
Pascal Backup                      Copyright 1983 Apple Computer, Inc. // Version 1.0
-----
Select Volumes to Backup.  Currently selected 0 Volumes from drive 0.(PROFILE)
(Press RETURN to accept selections, press ESCAPE to cancel Backup)

Backup from which volumes:
-----
      Name      Description
-> VOL1
  VOL2
  VOL3
  VOL4
```

You select volumes by moving the arrow that appears to the left of the volume name, using **↑** and **↓**. When the arrow is next to the name of the volume you want to select you press **→**. A plus sign appears next to the volume to show that you've selected it.

After you've selected a volume that contains files you want to back up, you must select those files.

See Chapter 5, "The Extended Filer in Depth," for more information on using wildcards.

Selecting Files for File Backup

You select files for backup in one of two ways:

- If you want to back up only one or two files on a volume you can type in the name of each file.
- If you want to back up several files from a volume, or every file on a volume, use the two wildcards.

Using Wildcards With Backup

Wildcards are a shorthand way of selecting all files that fit into a particular category. You can use the two Pascal wildcards, equal sign (=) and question mark (?), to select an entire group of files to back up with one command, rather than having to type each filename separately.

Let's say you want to back up the novel you're writing. You've written seven chapters so far, naming each of them CHAP1.TEXT, CHAP2.TEXT, and so forth. They're stored in the hard-disk volume named NOVEL.

If you want to back up your chapters using the Backup Selected Files option, you can do it one of two ways. You can go through the backup process for each file, typing in the entire filename for each chapter. Or, you can use wildcards.

Using the Equal Sign (=) Wildcard

The equal sign (=) wildcard can be used in two ways. You can use it to specify all files on a volume. Or you can use it to specify all files on a volume whose names meet certain criteria.

Using the Equal Sign (=) Wildcard to Back Up All Files on a Volume

Here's how the equal sign (=) wildcard can be used to back up all the files on one volume.

1. Select the Backup Files, Volumes, or Areas option from the Pascal Backup Main Menu by typing B.
2. Type F to choose the Backup Selected Files option.
3. Use and to position the arrow you'll see to the left of the volume listing. When the arrow is next to the volume that contains the files you want to back up, press .

If you are using an Apple II or II Plus you can use - to move the arrow up and - to move the arrow down.

In the example above, you would move the arrow to the left of NOVEL and then press .

4. You'll now be asked for the names of the files you want to back up. If you want to back up all files on a volume, type =. Press . Using the equal sign (=) in this way specifies every file on the volume you've chosen. After you press you see the name of every file in NOVEL appear on the screen.

Press again; you return to the Select Volumes display. If you are finished choosing volumes, press to accept your selections.

5. After you've specified the files you want to back up, you see the Backup Options display.

Choose whether or not you wish to have the disks verified for readability, specify where you wish to have a backup listing sent, specify the unit number of the disk drive to which you want your backup sent, and supply a comment if you wish to.

If you were backing up the volume NOVEL, your comment might read: Backup of volume NOVEL, Chapters 1-7, May 25, 1983, 2:00 a.m.

When you've completed these steps you'll see a prompt requesting blank disks. Insert each blank disk as it's needed, and remove and label each one when it's complete.

Using the Equal Sign (=) Wildcard to Choose Selected Files

You can also use the equal sign (=) to select files that fit into certain categories. Here's an example.

In addition to the seven chapters of your novel, volume NOVEL also contains a letter to your publisher. The name of the file is PUB.

If you wanted to back up only the files that contain chapters and not the letter you could use the equal sign (=) wildcard. When you see the prompt asking which files to back up, type C=.

This specifies every file on NOVEL whose filename begins with C and is followed by anything else. All of the chapter files would appear on the screen, but not PUB.

What if you also had a file called CARD that contained the business addresses of all of your publishing acquaintances? If you typed C= when asked for files, CARD would also be selected.

If you wanted to select only chapters you would type CH=. This would select only files that began with CH.

Using the Question Mark (?) Wildcard

When you use the question mark (?) wildcard each file on the volume is displayed individually and you have the opportunity to select or reject each one. For example, if you wanted to back up every chapter in NOVEL except Chapter 4, you could use the question mark (?) wildcard. Here's how it works:

When the File Selection display appears, type ? and then press **(RETURN)**. You see this message:

```
BACK UP NOVEL:CHAP1.TEXT Y/N?
```

Type Y to answer "Yes." When you come to Chapter 4, type N to answer "No."

The question mark (?) can be used to specify particular files, just as the equal sign (=) can. If you type C? you see only the files whose names began with C.

General File Backup Procedure

This is the general procedure you follow to back up files. Remember that this procedure will vary slightly if you have only one disk drive, or if you use wildcards to select files.

If you are using an Apple II or II Plus you can use (CONTROL)-(O) to move the arrow up and (CONTROL)-(L) to move the arrow down.

1. Select the volume that contains the files you want to back up by using the (↑) and (↓) to move the arrow that appears to the left of the list of volumes.
2. When the arrow is next to the volume you wish to select, press (→).

(→) selects the volume. You now go to the Select Files display.

3. Select files by either typing in the name of each file and then pressing (RETURN), or by typing in a wildcard specification and then pressing (RETURN).

Q&A: "What happens if I type in a filename twice?"

Even though you specify one file two times, Pascal Backup will make only one copy of that file.

4. When you've selected files by using one of these methods, press (RETURN) again. This takes you back to the Volume Selection display. You'll notice that the volumes from which you've already selected files will have a plus sign to the left of the volume name.
5. If you want to select another volume from which to choose files for backup, repeat the steps above.

When you've finished selecting volumes and files, press (RETURN) without selecting a volume.

Q&A: "What if I change my mind after I've selected a volume and the files from that volume?"

Move the arrow to the left of the volume you want to "deselect." Press (←). The plus sign will disappear.

6. You see the Backup Options display. Select the destination unit. This will generally be either #4, the first disk drive, or #5, the second disk drive.
7. Answer "Yes" or "No" to Verify destination disk? by typing either Y or N. Pressing (RETURN) accepts the default choice, which is "Yes."
8. Specify where you want the listing sent. The default choice is CONSOLE:.
9. Supply a comment.
10. Insert a blank disk and press the (SPACE) bar.

See the section above, "Specifying Additional Backup Information," for details on these choices.

Backing Up Volumes

The backup procedure for volumes is nearly identical to the procedure for backing up files. However, you cannot use wildcards to select volumes. You must select each volume individually using the volume selection method described.

These are the steps you follow to back up a volume:

1. Select the Backup Files, Volumes, or Areas option from the Pascal Backup menu by typing **B**.
2. Type **V** to select Backup selected volumes.
3. Select the volumes that you want to back up by using the **↑** and **↓** to move the arrow that appears to the left of the list of volumes. When the arrow is next to the name of the volume that you want to back up, press **→**. This selects that volume for backup.

If you're using an Apple II or II Plus you can use **(CONTROL)-(O)** to move the arrow up and **(CONTROL)-(L)** to move the arrow down.

If you wish to select more than one volume, repeat step 3 until each volume you want to back up has the small plus sign next to it. As you choose volumes, the message at the top of the screen will show you how many volumes you've chosen from the ProFile.

If you change your mind about a volume you can "deselect" it by moving the arrow until it's next to the name of the volume and then pressing **←**. The plus sign disappears, indicating that the volume is no longer selected for backup.

4. When you've selected all the volumes you want to back up, press **(RETURN)** to accept the selected volumes.
5. After you've selected the volumes for this backup, you'll see the Backup Options display.

Type in the unit number of the disk drive to which you want your backup sent. Choose whether or not you wish to have the disks verified for readability. Specify where you wish to have a backup listing sent, and then supply a comment if you wish to.

When you see the prompt requesting blank flexible disks, insert a blank disk in the disk drive you've chosen and press **(RETURN)**. When the first disk is full, you see a request for the second, and so on until the backup is complete.

See the above section, "Specifying Additional Backup Information," for details on these choices.

Backing Up the Entire Pascal Area

Backing up the entire Pascal area will save you time but gives you less flexibility. You don't need to specify which files or volumes you want to back up. That saves a few minutes.

However, if you find that you need a previous version of one file out of the entire area, you will have to restore the entire Pascal area to get to it.

Follow these steps to back up the entire Pascal area:

1. Type **P** to select **Backup the entire Pascal Area**.
2. You will see the Backup Options display. Specify which unit you're using for the backup disks, specify whether or not you want your disks verified for readability, supply a destination for the listing, and supply a comment describing the backup.
3. Insert blank disks as they are requested. Remove and label each disk as it's completed.

Backing Up the ProDOS Area

Unless you have only a small number of ProDOS files, use Backup II to back up the ProDOS area.

If you choose to use Pascal Backup for this procedure, follow these steps.

1. Type **N** to select **Backup the ProDOS Area**.
2. You will see the Backup Options display. Specify which unit you're using for the backup disks, specify whether or not you want your disks verified for readability, supply a destination for the listing, and supply a comment describing the backup if you wish to.
3. Insert blank disks as they are requested. Remove and label each disk as it's completed.

Backing Up the Entire ProFile

This procedure is identical to backing up the ProDOS or ProFile areas separately, except that you type **□** from the Backup Files, Volumes, or Areas menu.

Remember that a five-megabyte ProFile holds as much information as 36 flexible disks. If your ProFile is close to full you will need 36 flexible disks to back it up. Larger hard disks will require proportionally more disks.

Backup Pointers

Here are some useful pointers on backing up your files.

1. Establish a backup routine and stick to it.
2. Use high-quality disks.
3. Label your disks sequentially. If you have a set of 10 backup disks, the first would be labeled "1 of 10," the second "2 of 10," and so on.
4. Store your backup disks in a safe place, if possible in a building other than the one where your Apple is.
5. Keep a printed copy of your backup directory with the disks.

Restoring Information to the ProFile

You may never need your backup disks. Some people lead charmed lives and never find themselves sitting in the middle of an electrical storm, wondering why they didn't take the time to back up their ProFile when they had the opportunity.

Then again, you may find that one day your adherence to a backup schedule will save you hours and hours of trying to reconstruct Appendix B of the company business plan—the appendix with the financial models in it.

If you do need to use your backup disks to restore information to the ProFile, you begin by choosing the Restore Files, Volumes, or Areas option from the Pascal Backup menu.

```
Pascal Backup          Copyright 1983 Apple Computer, Inc.      Version 1.0
-----
Restore Files, Volumes, or Areas

Press the first letter to select an option. Option?

L(list backup directory)
C(confirm Volume or File Replacement)
F(files. Restore selected files in a volume)
V(volumes. Restore selected volumes)
P(Pascal Area. Restore the entire Pascal Area)
N(Non-Pascal. Restore the ProDOS Area)
D(device. Restore the entire ProFile)
```

Listing the Backup Directory

You use the List Backup Directory option to display the list of files or volumes that's on the first disk of any backup set.

To use the List Backup Directory option, insert the first disk of a backup set in a disk drive. Type the unit number assigned to that disk drive. Press **(RETURN)**. If the disk is the first from a file backup you will see a list of all the files on the backup disks in that set. If the disk is the first from any other type of backup, you will see a list of volumes.

Confirming Replacement

The second option on the Restore Files, Volumes, or Areas Menu is **C**onfirm Volume or File Replacement. If you choose to confirm replacement you have the option of not writing over an existing file or volume.

Pascal Backup automatically confirms replacement. You use this option only if you choose not to confirm replacement.

Generally when you restore information to the ProFile you won't have an existing copy of the file or volume on the hard disk, but sometimes you do. If you were doing a volume restore of NOVEL, and Pascal Backup found an existing copy of NOVEL on the ProFile, you would receive the message:

```
NOVEL exists on ProFile: replace it?  
[Yes/No] No
```

Perhaps you didn't realize the volume was still on the ProFile. You might choose not to restore the volume until you'd looked at what's in the version on the ProFile. In this case, type **N** to select "No."

Selecting a Restore Option

The other options on the Restore Files, Volumes, or Areas menu are

- F(iles). Restore selected files in a volume
- V(olumes). Restore selected volumes
- P(ascal Area). Restore the entire Pascal area
- N(on-Pascal). Restore the ProDOS area
- D(evice). Restore the entire ProFile

You must choose the restore option that matches the backup procedure you used. If you used the Backup Selected Files option, you must use the Restore Selected Files option. If you backed up the entire Pascal area, you must restore the entire Pascal Area.

Selecting a Disk Drive

After you select any of the restore options you must specify which disk drive you will be using. You type in the unit number of the disk drive you want to use, insert the first disk of the backup set in that drive, then press **(RETURN)**.

You will see the directory information for the backup set, including the comment you supplied.

If you are restoring files or volumes, you use the directory information displayed on the screen to select the files or volumes you want to restore.

Using Restore With Only One Disk Drive

If you have a one-drive system you will have to remove *PPM Program* from the disk drive and then insert the first disk in the backup set before you can begin a restore operation.

When you complete the restoration you must put *PPM Program* back into the drive before you return to the PPM Main Menu.

Restoring Selected Files

Here is the procedure you use to restore selected files:

1. Select the Restore Selected Files option by typing F from the Restore Files, Volumes, or Areas menu.
2. Take the first disk of the backup set from which you wish to restore and insert it in a disk drive. Type in the unit number of that disk drive. Press **(RETURN)**.

Q&A: “What if I put disk 4 of 9 into the drive instead of the first disk in the set?”

Don’t worry—you’ll see a message telling you that you’ve inserted the wrong disk. Take out the incorrect disk and find disk 1 of 9.

3. You see a list of all volumes from which files were backed up in this backup set. You must select volumes to restore before you select files.

Select a volume by moving the arrow with **(↑)** and **(↓)**. When the arrow is next to a volume you wish to restore, press **(→)**.

4. You select files to restore in the same way you selected files to back up. You either type in the names of the files, or you use wildcards.

When you have completed selecting files press **(RETURN)** to return to the Volume Selection display.

5. Continue to select volumes and files. When you complete your selections, press **(RETURN)** from the Volume Selection display without making a selection.
6. If you choose to confirm replacement, the name of each file that currently exists on the ProFile will be displayed with the message

```
filename...exists on ProFile - replace it?  
[Yes/No] No
```

You must answer “Yes” or “No” for each file. If you press **(RETURN)** you get the default selection, which is “No.”

If you did not choose to confirm replacement you see the name of each file appear on the screen as it is restored.

If you have an Apple II or II Plus you can use **(CONTROL)-(O)** to move the arrow up and **(CONTROL)-(L)** to move the arrow down.

See the sections on using wildcards earlier in this chapter.

Restoring Volumes

Here are the steps you follow to restore volumes.

1. Select `Restore Files, Volumes, or Areas` from the Pascal Backup Main Menu.
2. Select `Restore selected volumes`.
3. Take the first disk in the backup set from which you wish to restore and insert it in a disk drive. Type in the unit number assigned to that drive. The default is #5, the second disk drive.
4. You will see a list of each volume in the backup. Select volumes to restore by using `↑` and `↓` to move the arrow to the left of the volume names until it's next to the volume you wish to select.
5. Press `→` to select the volume. You'll see a plus sign appear to the left of the volume name.
6. When you've selected the volumes you want to restore, press `RETURN` to accept your selections.
7. If you choose to confirm replacement the name of each volume that currently exists on the ProFile will be displayed with the message

```
filename exists on ProFile - replace it?  
[Yes/No] No
```

You must answer "Yes" or "No" for each volume. If you press `RETURN` you get the default selection, which is "No."

If you did not choose to confirm replacement you see the name of each volume appear on the screen as it is restored.

If you have an Apple II or II Plus you can use `CONTROL-O` to move the arrow up and `CONTROL-L` to move the arrow down.

Don't forget you can "deselect" a volume by pressing the `←`.

Restoring the Pascal Area, the ProDOS Area, or the Entire ProFile

Your ProFile must have a Pascal area on it before you can use any of these restore procedures.

When you select any of these three procedures from the Restore File, Volumes, or Areas menu, you must first specify which disk drive you'll be using, insert the first disk of the backup set in that drive, and then press **(RETURN)**.

You will see the message `Area restores may overwrite large amounts of data. Do you really wish to perform area restore? [Yes/No]No`

The default answer is "No." To perform any area restore you must type **Y** to select "Yes."

What to Do If Disaster Strikes

Earlier in the chapter you read the recommended procedure for backing up your Pascal area. If you back up your data volumes by file, here are the steps you'll use to restore your Pascal area if you ever lose the entire contents of the ProFile.

See the *ProDOS User's Manual* for information on how to format a ProFile.

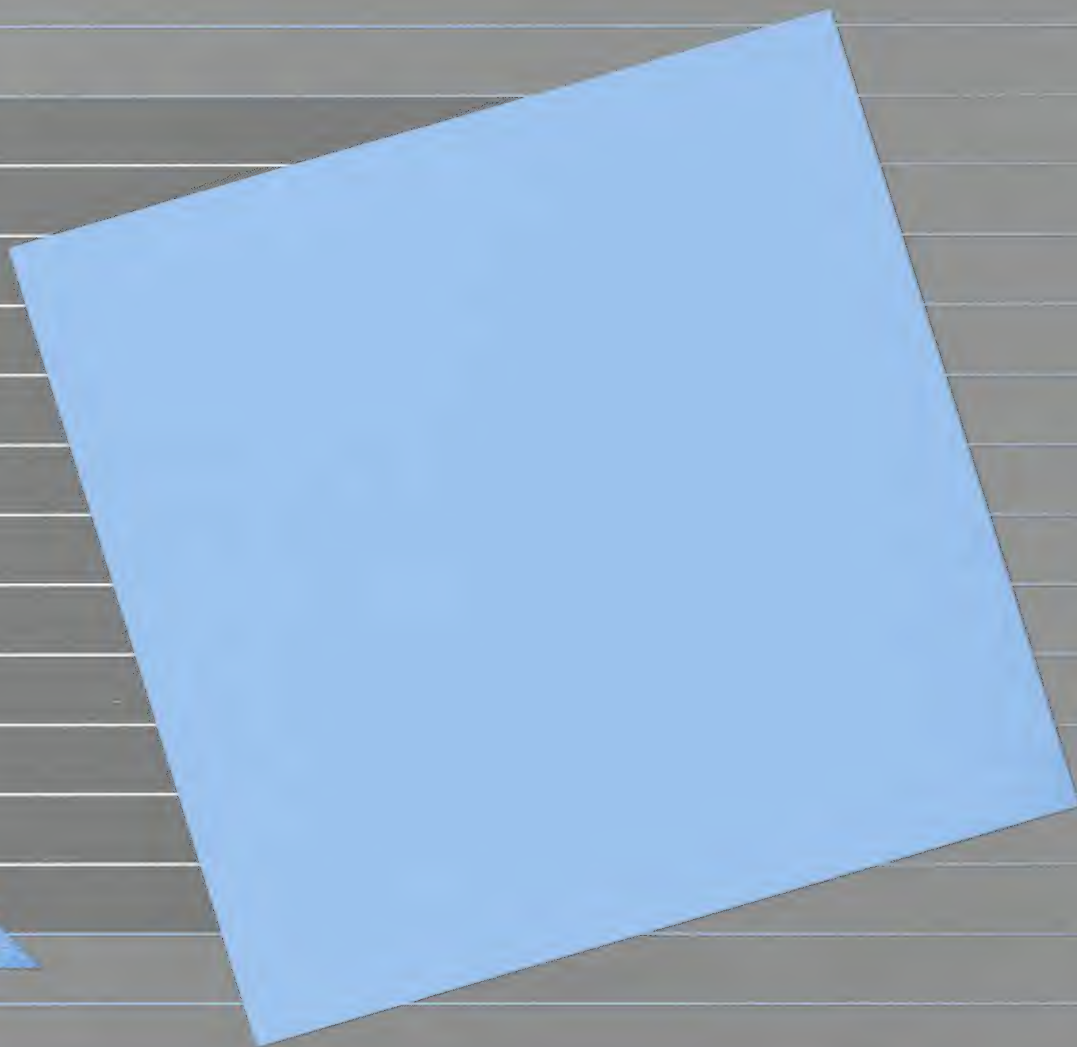
1. Reformat the ProFile.
2. Create the Pascal area by typing **C** to select the Create option from the PPM Main Menu.
3. Use the Volume Manager to re-create the volumes on your ProFile. Check the manuals that came with your programs for information on creating the hard-disk volumes you need. Use the Extended Filer Transfer command to copy all programs back to volumes on the ProFile.
4. Select the Pascal Backup option from the PPM Main Menu by typing **B**.
5. Select the Restore Files, Volumes, or Areas option from the Pascal Backup menu.
6. Select the Restore Selected Files option.
7. Use the equal sign (=) wildcard to specify all files.
8. Be sure the first disk of your latest backup set is in the drive you specify.

If you've been doing full-volume backups, rather than file backups, you won't need to re-create the volumes before you restore. This is done automatically as you restore.

Chapter 6: Pascal Backup in Depth

A Complex Example

-
- 117** Background: Contiguous Versus Non-Contiguous Storage
 - 122** A Real-Life Example
 - 124** Two Solutions to “Not Enough Room...”



A Complex Example

The preceding chapters have introduced you to PPM and given you some simple examples of how you'll use it. This chapter gives you an example of how to manage your Pascal area when it's grown beyond one or two volumes.

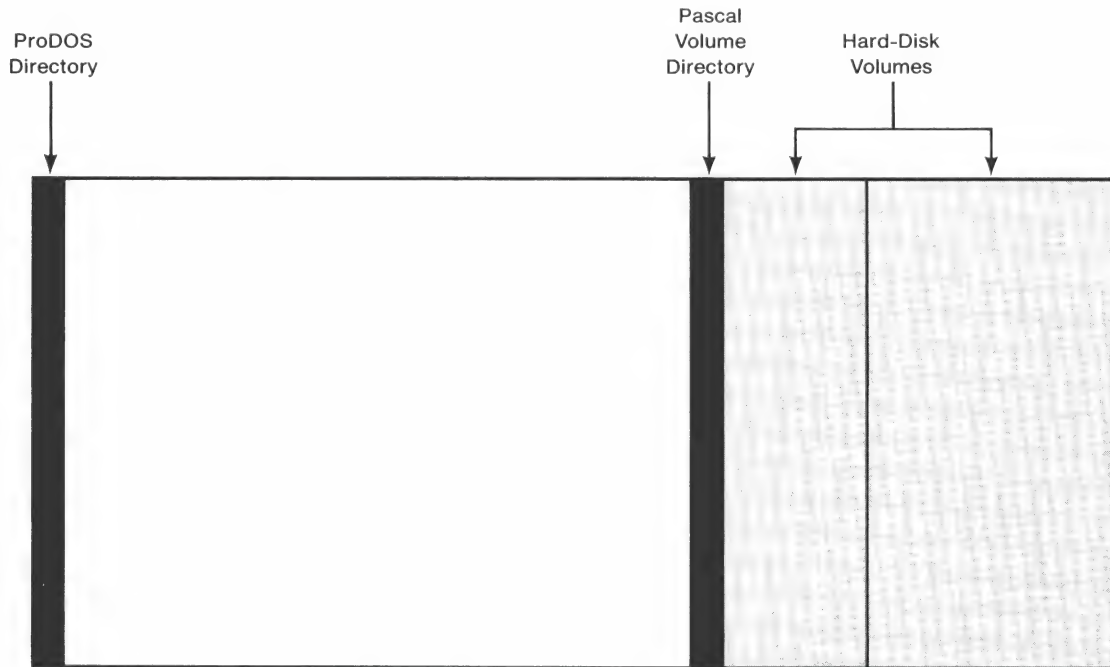
When you begin to juggle several application programs and their data on your ProFile, you'll find that now and then you'll have to do some minor housekeeping to keep things in order. The example in this chapter will show you the kinds of situations you might see and will give you simple procedures you can use to keep your Pascal area organized efficiently.

Background: Contiguous Versus Non-Contiguous Storage

Many of the housekeeping problems you may encounter using your ProFile have to do with the two different ways in which ProDOS and Pascal store data.

Pascal uses contiguous storage. (See Figure 7-1.) If you want to create a 280-block hard-disk volume, you must have 280 blocks free, each block adjacent to the next.

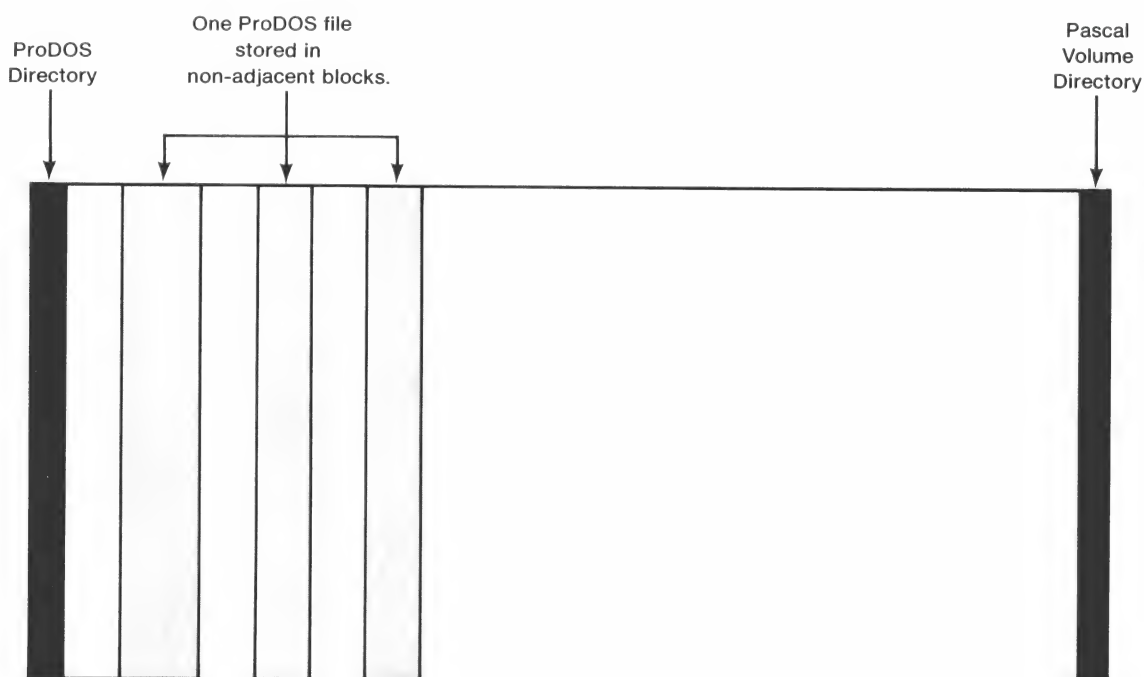
Figure 7-1. Contiguous Storage



Contiguous Storage—
Each file or volume
is stored in adjacent blocks.

ProDOS, however, uses non-contiguous storage. (See Figure 7-2.) When you create a new ProDOS file, ProDOS will use any memory space available, regardless of whether or not the available spaces are contiguous.

Figure 7-2. Non-Contiguous Storage



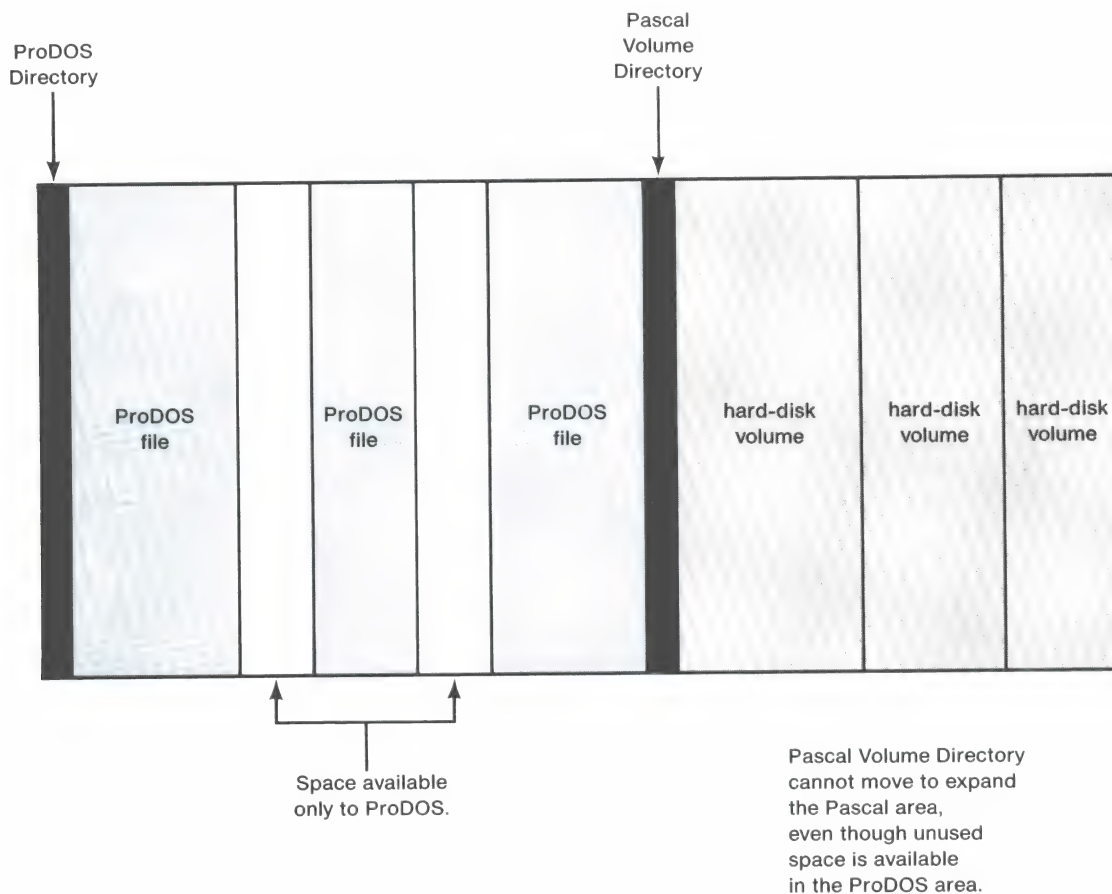
Non-Contiguous Storage—
One file can be stored
in non-adjacent blocks.

These two methods of using storage space on the ProFile create two types of housekeeping problems.

When you delete a hard-disk volume from your ProFile, you're left with unused space between volumes. Unless you create a hard-disk volume the same size as, or smaller than, that unused space, it will never be used.

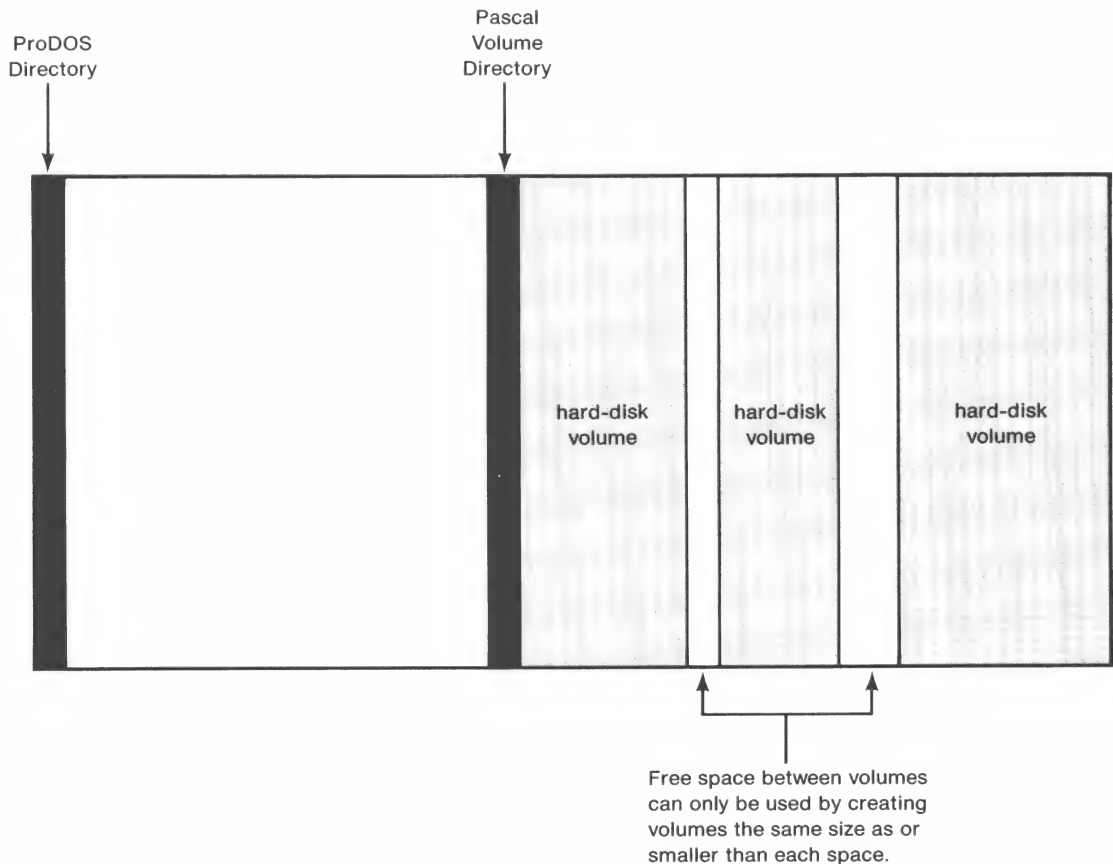
As you will see in the following example, you might find yourself with 1000 blocks left in your Pascal area, but with the blocks divided into five different chunks, none of which is large enough for the 280-block volume you want to create. (See Figure 7-3.) The example will show you the way out of this common housekeeping problem.

Figure 7-3. Problem Caused by Contiguous Storage



Non-contiguous storage causes a different type of problem. ProDOS can use small pieces of space anywhere on the ProFile. If ProDOS uses the blocks right next to the current location of the Pascal volume directory, you won't be able to expand the Pascal area past that location. There may be lots of unused space in the ProDOS area, but until you remedy the problem you won't be able to use any of that space for Pascal files. (See Figure 7-4.)

Figure 7-4. Problem Caused by Non-Contiguous Storage



The following example will give you an idea of how the problems caused by the different types of storage can affect life with your ProFile.

A Real-Life Example

John Hillman runs a free-lance real estate appraisal service. He has four different programs and their data on his ProFile: a spreadsheet program, an appraisal program, a data base program, and a mailing list program.

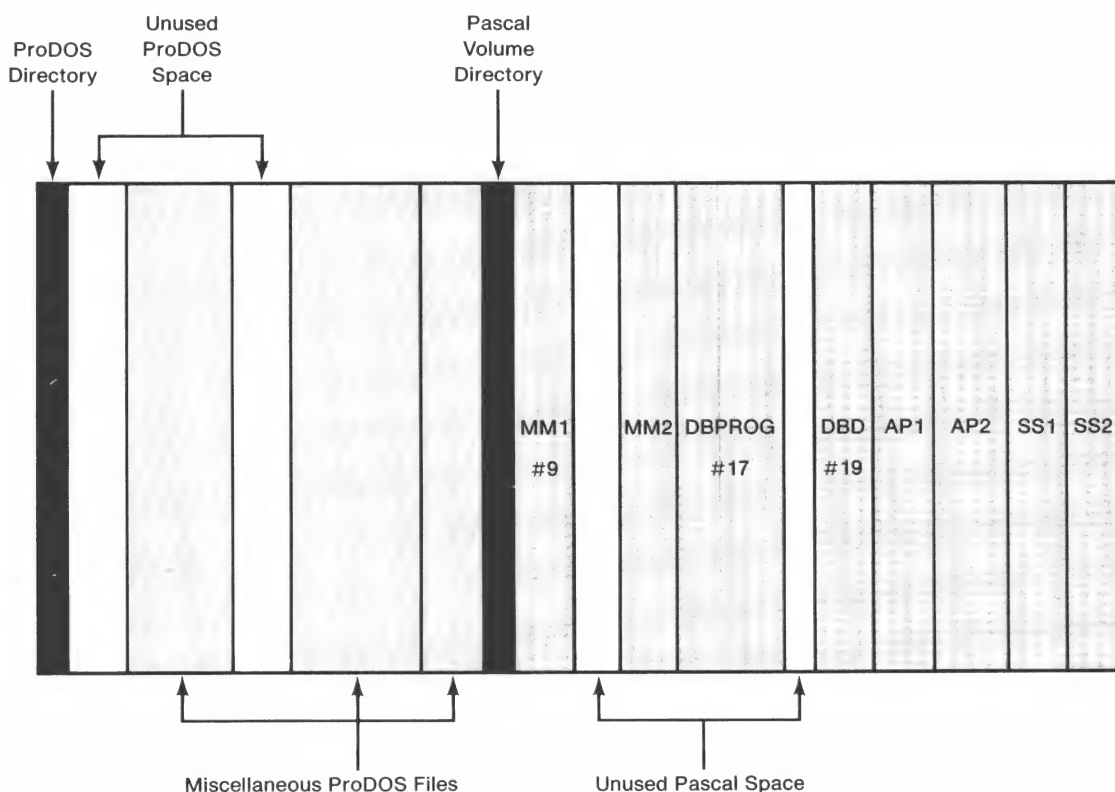
He's just bought a new word processing program and he wants to put it on his ProFile.

He begins by starting up PPM and selecting the Volume Manager. Here's what he sees:

```
Volume Manager          Copyright 1983 Apple Computer, Inc.   Version 1.0
-----
A(ssign, R(elease, C(reate, D(elete, W(Kprot, M(odify, K(runch, N(ext,
Q(uit

ProFile drive: 0
MP Name      Description      Unit
MM1          Mail List Prog # 9
MM2          Mail List Data
DBPROC       Data Base Prog #17
DBD          Data Base Data #19
AP1          Appraise Prog
AP2          Appraise Data
SS1          SpreadsheetP
SS2          SpreadsheetD
```

Figure 7-5. John's ProFile



He needs to create two volumes for his word processing program, one hard-disk volume of 280 blocks for the program itself, and one hard-disk volume of 500 blocks for the documents he'll be writing. He begins by selecting the Create option and specifying a 280-block hard-disk volume.

He receives the message `There is not enough room to create a volume of this size.` This means that ProDOS is storing information within 280 blocks of the volume directory. He realizes that if he doesn't have room for a 280-block volume, he certainly doesn't have room for a 500-block volume.

Two Solutions to “Not Enough Room...”

At this point John has two alternatives. The first is to add up all the free space on the Pascal side to see if it equals 750 blocks. If it does, John's problem can be solved by using the Krunch command to consolidate the Pascal area.

If there aren't 750 blocks available within the Pascal area, John will have to back up the contents of the ProFile and then restore it to use the space more efficiently.

John decides that it's time for some serious housekeeping. He's going to back up the contents of the ProFile. When he restores his information, he'll have more room available for the Pascal area.

These are the steps he follows:

1. He backs up the ProDOS area, using Backup II.

Backup II transfers only information to flexible disks, not the unused space between blocks.

2. He backs up the Pascal area, using the PPM Pascal Backup option. He backs up each entire volume by file. That way Pascal Backup will copy only information and not unused space, resulting in more efficient use of the Pascal area.

He makes a list of the volumes on the ProFile, along with their sizes. He must re-create these volumes before he can restore the files.

3. He reformats the ProFile.

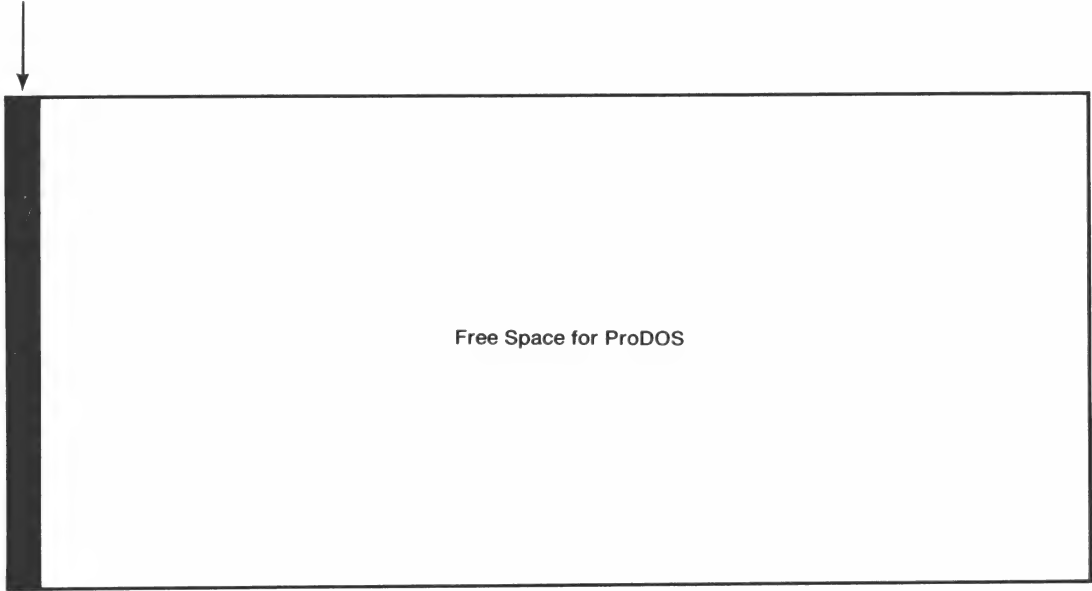
See the *Backup II User's Manual* for more information.

If you don't know the size of your volumes you can find out by using Extended Filer Extended Directory command.

Reformatting the ProFile creates a new ProDOS directory, as shown in Figure 7-6. When all of the ProDOS and Pascal information is restored, the new directory will show the new locations of the files.

Figure 7-6. Newly-Reformatted ProFile

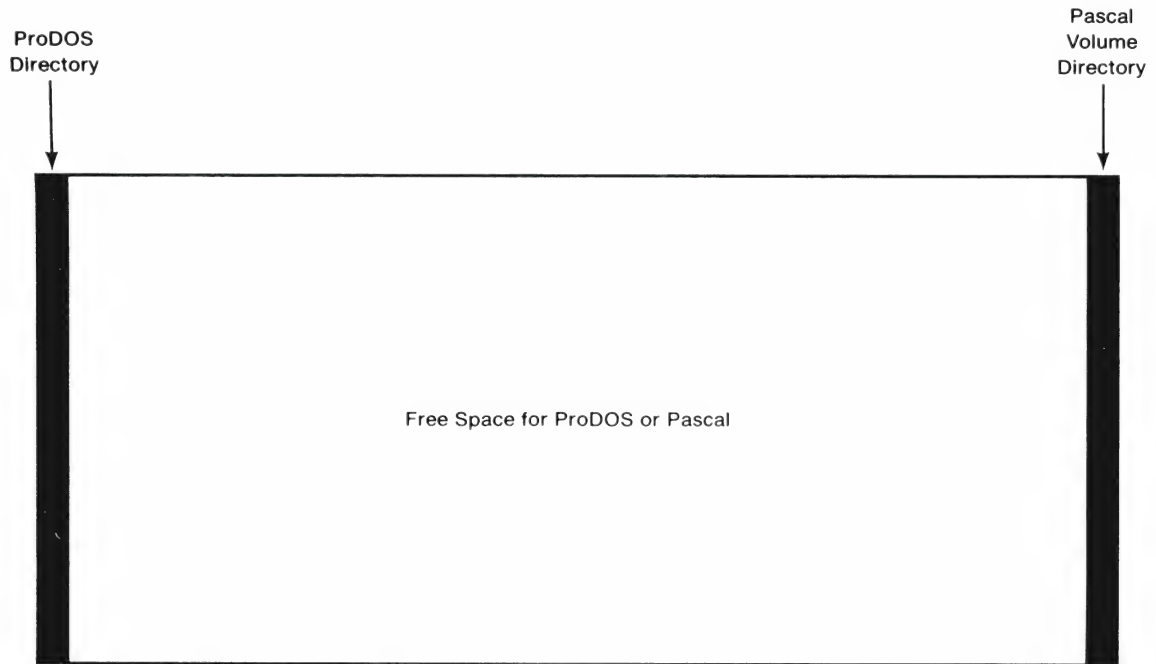
ProDOS
Directory



4. He creates the Pascal area.

The new Pascal volume directory will be placed at the end of the ProFile storage as shown in Figure 7-7. As each Pascal volume is restored the volume directory will move up into the free area.

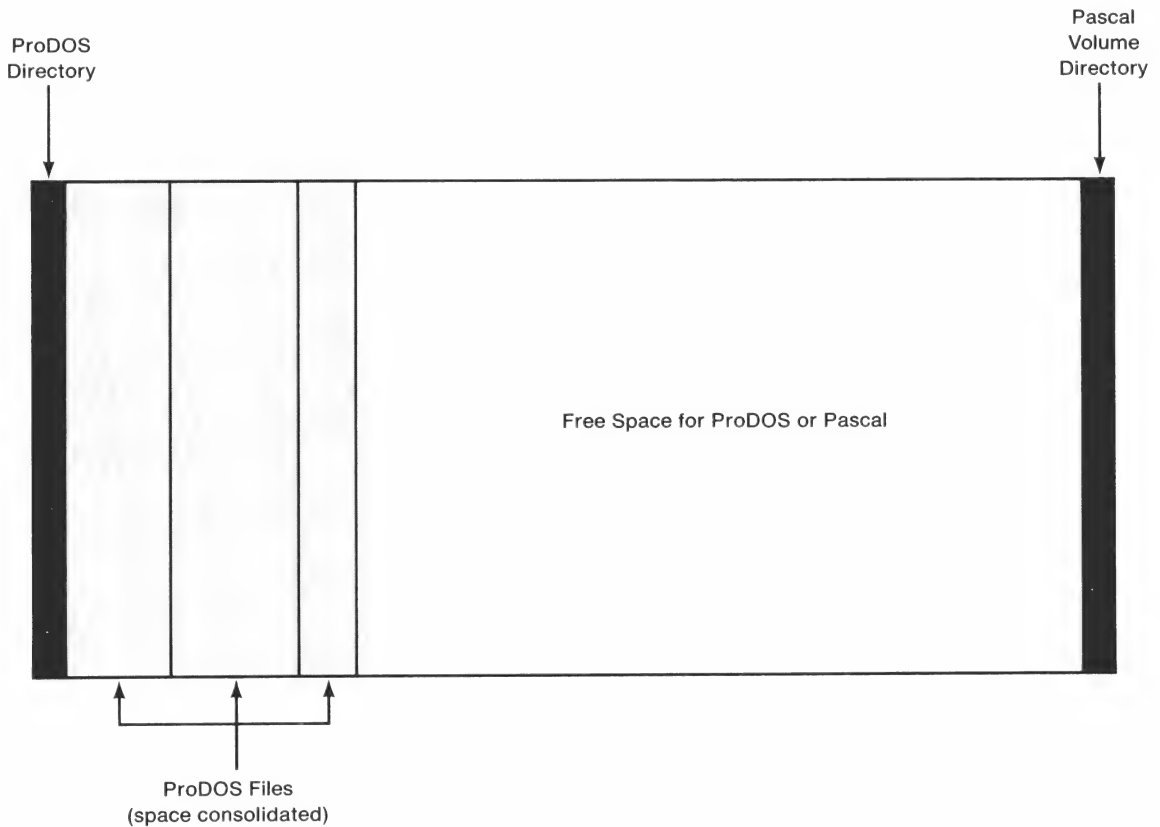
Figure 7-7. Location of the Pascal Volume Directory



5. He restores the ProDOS area using Backup II.

The ProDOS files are copied to the ProFile without the original unused space between file portions as shown in Figure 7-8.

Figure 7-8. ProFile With ProDOS Area Restored



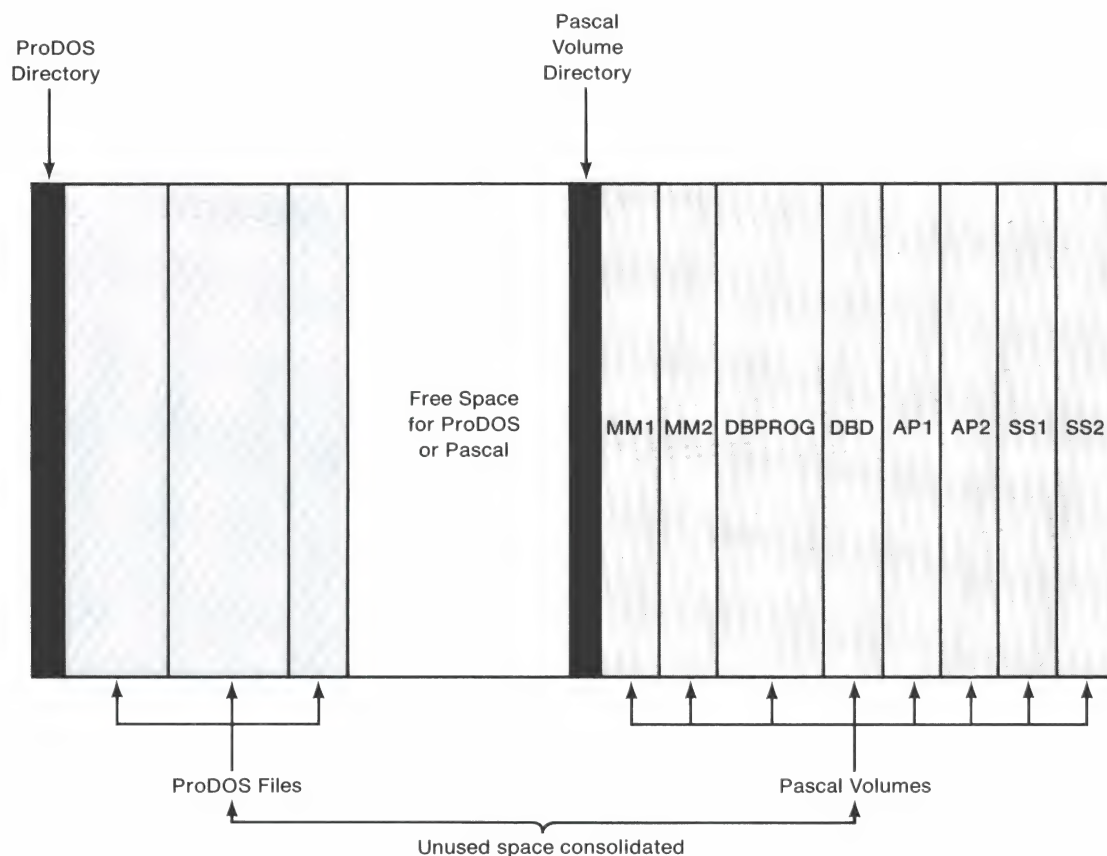
6. He recreates the volumes in the Pascal area. He must do this because he did a backup of selected files to consolidate space.

7. He restores the Pascal area.

The Pascal Backup Restore Selected Files option copies the files into the volumes he just created.

Figure 7-9. Completely Restored ProFile

His ProFile now has all the original information on it, but the unused space has been consolidated and is now available for either ProDOS or Pascal use.



After following these steps John has room on his ProFile for the two new volumes he needs for his word processing program.

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Error Messages

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Error Messages

It can be really frustrating to press the wrong key and suddenly see your screen light up with the message `Error #24`. PPM has tried to anticipate the problems that most users will run into, and to provide error messages that give useful information on how to remedy the situation.

In addition, you'll see that several of the errors you might encounter in the Pascal Backup portion of PPM give you choices on ways to recover from an error.

Here's a list of error messages that you might see, with a possible explanation of what the problem might be.

If you're still having trouble after trying the solutions given here, go back to the section of the manual that explains the procedure you're trying to complete. You may find the answer there.

General Errors

These errors can occur in many different situations while using PPM.

`ERROR: I/O error #20 has occurred.`

An error has occurred while using the ProFile. See your dealer for information.

`ERROR: Your ProFile is not ready for use with PPM. Please see your PPM Manual, Appendix A.`

This error occurs if your ProFile is not turned on, or if it is not formatted for ProDOS. See the *Apple II ProFile Owner's Manual* or the *ProDOS User's Manual* for information on formatting.

ERROR: This drive number is unavailable or illegal.

PPM allows you to attach up to three ProFiles to your Apple II. It automatically numbers the first ProFile drive 0, the second drive 1, and the third drive 2.

You will receive this error message if you ask for a drive number that isn't 0, 1, or 2.

ERROR: Unit number is incorrect (allowed 4, 5, 9-20, 128-143).

Try again with a unit number from within the allowed range.

Errors During PPM Startup and Creation of Pascal Area

ERROR: There is no ProFile driver attached to this Pascal system.

The disk you used to start up PPM (or perhaps a program disk) did not have the special files on it that are necessary to use the ProFile. Return the disk to the dealer from whom you purchased the product.

ERROR: This ProFile is not formatted for ProDOS.

Your ProFile must be formatted for use with ProDOS before you can create the Pascal area. See the *ProFile Owner's Manual*, or the *ProDOS User's Manual* for instructions on how to format.

ERROR: ProDOS directory is full, cannot allocate Pascal area.

You can create up to 51 files in the ProDOS root directory. To ProDOS, the Pascal area is one of these files.

If you receive this error you have allocated all of the available files in the root directory. The solution is to delete one of the files in the ProDOS root directory, or move one of those files to a subdirectory. This will open an entry in the root directory for the Pascal area.

ERROR: All available ProFiles have Pascal Areas.

You've tried to create a Pascal area when all of the ProFiles attached to your system already contain Pascal areas.

ERROR: Pascal area name conflicts with an existing ProDOS file.

You have a file in the ProDOS root directory named PASCAL.AREA. You must delete or rename this file before you can create a Pascal area on the ProFile.

ERROR: There is no space on this disk to allocate Pascal area.

Information in the ProDOS area of the ProFile extends to the last blocks on the ProFile. You should be able to gain space by backing up the ProDOS area with Backup II, reformatting the ProFile, and then restoring the ProDOS area.

Errors When Deleting the Pascal Area

ERROR: There are no ProFiles with Pascal Areas.

You've chosen the Delete Pascal Area option from the PPM Main Menu, but you do not currently have a Pascal area on any ProFile that is attached to your system.

Errors While Using the Extended Filer

ERROR: The Extended Filer program was not found.

If you're a Pascal programmer and you've substituted the Extended Filer for the standard Filer, you may have made an error in the program you used.

If you're not a Pascal programmer, see your dealer.

Errors While Assigning and Releasing Unit Numbers

ERROR: Cannot assign the ProFile unit number #nnn.

One of the user device units—in the range 128-143—is automatically assigned to the entire ProFile by the Pascal system. You cannot change this assignment. Pick another unit.

If you were instructed to use this unit by an application program, see your dealer.

Errors While Creating or Deleting Volumes

ERROR: Volume Directory is full. No more volumes can be created.

You have already created the maximum of 31 volumes in the Pascal area. There are two solutions to this problem. Instead of creating a new volume you can use space on an old volume, or you can combine the data on two volumes in one volume and use the other for your new information.

If you have created volumes according to specific instructions in an application's manual, you may be unable to use these volumes if they are modified. Keep this in mind when you're changing volume information to gain space in the volume directory.

ERROR: There is not enough room to create a volume of this size.

You can use the Krunch command to consolidate the Pascal area to provide more space, or you can perform a complete backup of the ProFile. See the complex example in Chapter 5 for more information.

ERROR: The name of this volume conflicts with another volume.

Pick another name, or make sure the description of the volume is unique.

ERROR: This volume is write protected—action cannot occur.

Use the Volume Manager Write Protect option to turn off write protection.

ERROR: Volume contains files, cannot be deleted.

Use the Extended Filer Remove command to delete all files on the volume.

ERROR: Illegal volume name.

Volume names must be no more than 7 characters long and begin with a letter. A volume name cannot contain these characters: dollar sign (\$), equal sign (=), question mark (?), **(RETURN)**, or any control character (a character generated by holding down **(CONTROL)** while typing another key).

Errors While Using Pascal Backup

ERROR: The Backup program was not found.

See your dealer.

ERROR: (filename) is not a valid Pascal file name.

Pascal filenames must be no more than 15 characters long. See information above under "Illegal volume name" for more information on illegal characters.

ERROR: (filename) not found in volume (volume name).

You entered a legal filename, but the file cannot be found in the volume you selected. Select a different volume, or go on to another file.

ERROR: Disk in unit n cannot be formatted.

N(ew disk
D(rive change
C(ancel backup

The disk in the drive you're using for backup cannot be formatted for some reason. You have three options. You can type **N**, and insert another blank disk. You can type **D**, and try the same disk in a different disk drive. Or you can type **C**, to cancel the backup.

ERROR: I/O error nn writing to unit n.

N(ew disk
D(rive change
C(ancel backup

An I/O error was encountered during the process of writing information to the disk. You have three options. You can type **N**, and insert another blank disk. You can type **D**, and try the same disk in a different disk drive. Or you can type **C**, to cancel the backup.

ERROR: Disk in destination unit is from a current backup set.

You've inadvertently put one of the disks you've already copied files to back in the drive. Take it out and replace it with a blank disk.

ERROR: I/O error nn reading ProFile.

An I/O error has occurred while reading the ProFile. The backup session ends after this error and must be reinitiated.

ERROR: I/O error nn reading backup disk in unit n.

D(rive change
I(gnore error
F(ile skip
V(olume skip
R(eformat disk
C(ancel remainder of restore

The I/O error may have occurred for several reasons. The problem may have to do with the disk drive you're using. Changing drives or reformatting the disk may eliminate the problem. Try both of those options before you decide to skip the volume or file.

If you ignore the error you run the risk of having problems with the information transferred to your ProFile.

ERROR: Disk in unit n is not a backup disk.

You've inserted a disk that isn't part of a backup set into the drive you're using to restore information. Find the correct backup disk in the set and try again.

ERROR: Disk is number n. Please insert number x of backup set.

Your backup set is out of sequence. Find the next disk in the sequence.

ERROR: No room in directory of (volume name) for (filename).

F(ile skip - go on to next file
V(olume skip - go on to next volume
C(ancel remainder of restore

Only 77 file entries can appear in a Pascal directory. You already have 77 files in this volume.

If you skip the file, the next file to restore may already appear on the volume. You could restore it without a problem.

After quitting the restore process you can delete one of the files or transfer it to another volume to make room for the other files to restore.

ERROR: No room in (volume name) for (filename).

F(ile skip - go on to next file
V(olume skip - go to next volume
C(ancel remainder of restore

The largest contiguous storage area in this volume is not large enough for the current file.

File skip may skip to a file that is the same size or smaller than the largest space left on the volume.

ERROR: Insufficient room on ProFile to create volume (volume name).

V(olume skip - go to next volume
C(ancel remainder of restore

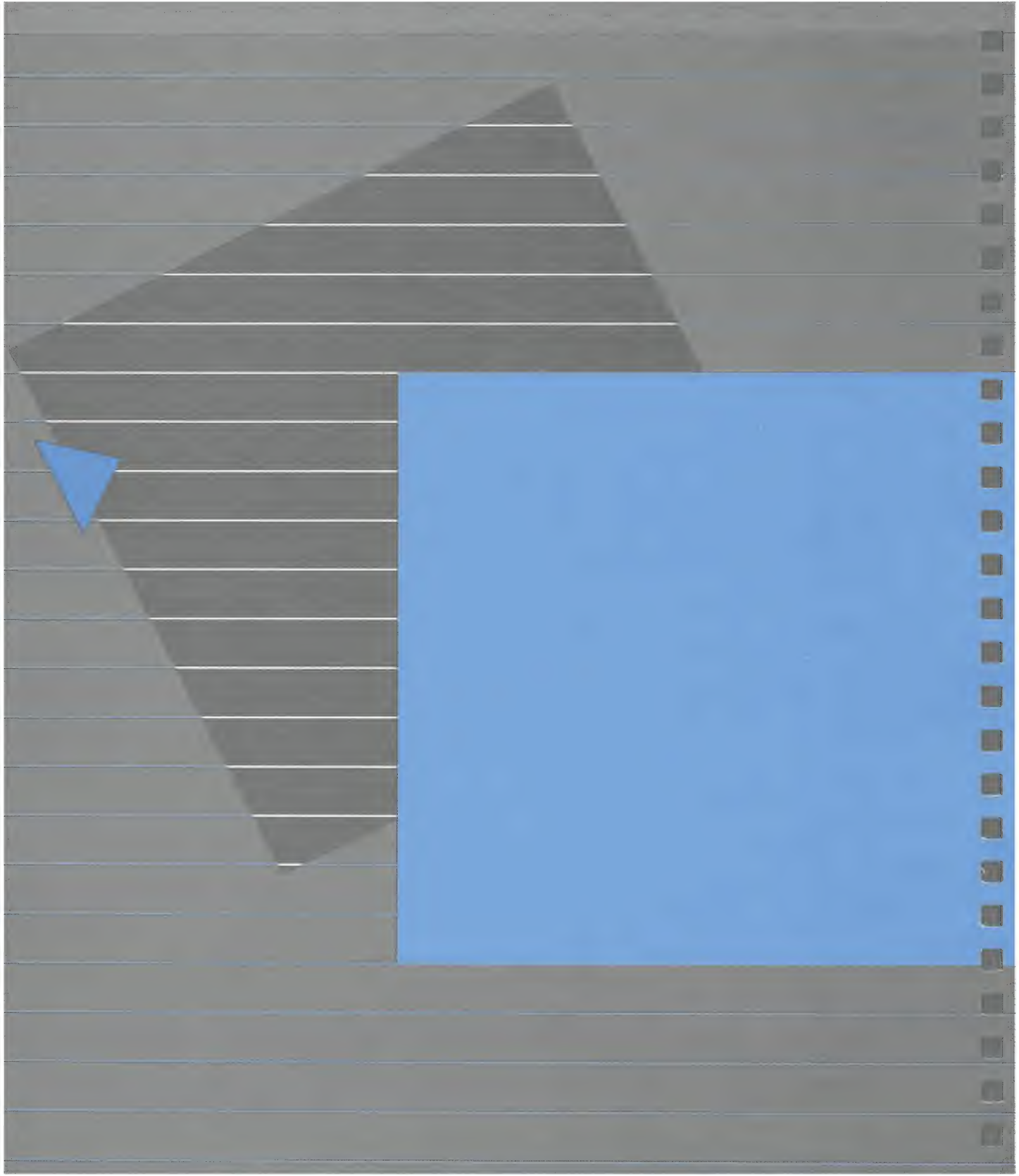
The Pascal Volume Directory cannot move up any farther because of ProDOS space allocation.

Volume skip may go on to a volume small enough to fit in the remaining space.

You may have to perform a backup and restore of the ProDOS area before you can restore the volume that wouldn't fit. See Chapter 5 for information.

ERROR: Insufficient room on ProFile to create Pascal/ProDOS area.

This message will appear only when restoring either the entire Pascal or the entire ProDOS area. You must back up the ProFile to gain space before you can restore the area.



For Programmers Only

If you're familiar with the standard Pascal Filer, learning to use PPM and its functions will be simple. Instead of reaching for a flexible disk to format, you'll use PPM to create a hard-disk volume on your ProFile.

A hard-disk volume is identical in format to a flexible-disk volume, with one exception. You can specify the number of blocks to be allocated to your hard-disk volume. You aren't arbitrarily limited to 280.

You can create up to 31 hard-disk volumes on the Pascal area of the ProFile. You make these volumes available for use by assigning them to Pascal units.

You can also use PPM to do the same types of standard housekeeping chores that you're used to doing with disks. PPM uses standard Pascal contiguous storage allocation. If you create and then delete numerous small hard-disk volumes, you will lose the use of much of this space. Just as you would with a disk, you can use the Krunch command to consolidate the unused space in the Pascal area.

PPM includes a new version of the standard Pascal Filer. The Extended Filer gives you all of the commands you're used to, plus one new command, Use Volume Manager. This command takes you directly to the Volume Manager portion of PPM.

All Filer commands work with hard-disk volumes exactly as they do with flexible disk volumes.

Using the Extended Filer With Apple II Pascal

If you use the Apple II Pascal system with the ProFile you may replace your standard Filer with the Extended Filer.

You can do this by writing a program that chains to FILER.CODE, the file that contains the Extended Filer, and putting it in a file named SYSTEM.FILER.

Transferring the Pascal 1.2 System to the ProFile

The most efficient way to use the Pascal system with the ProFile is to create one large hard-disk volume and transfer the necessary Pascal files from the disks APPLE1:, APPLE2:, and APPLE3: to the ProFile.

Here's a procedure to set up a volume on the ProFile that contains all your Pascal system files and PPM code files; this volume can be used as the Pascal system disk.

You must have Pascal 1.2 to use the ProFile with the development system. See your dealer for information on upgrades.

1. Format a blank flexible disk with the volume name PASCAL: .
Transfer these files from APPLE1: to PASCAL:

SYSTEM.PASCAL

SYSTEM.MISCINFO (the version corresponding to your system)

Then transfer all files from the PPM Program disk to PASCAL:, except SYSTEM.PASCAL and SYSTEM.MISCINFO.

2. Create a hard-disk volume on the ProFile. Make it 1000 blocks in length and name it TEMP: .
3. Transfer the contents of your flexible disk (PASCAL:) to TEMP:, using the equal sign (=) wildcard.

See the *Apple Pascal 1.2 Update* for information on changes to Apple II Pascal code files.

4. Transfer all files on APPLE1: that haven't yet been transferred from PASCAL: to TEMP:. You may use your own version of SYSTEM.LIBRARY if it contains the CHAINSTUFF unit.
5. Transfer all files on APPLE2: to TEMP: .
6. Transfer any utilities that you regularly use from APPLE3: to TEMP: .
7. Change the name of TEMP: to PASCAL: .
8. Start up your system with *PPM Startup*. When you receive the message `Insert boot disk with SYSTEM.PASCAL on it,` then press RETURN. Remove *PPM Startup* and insert the PASCAL: disk you created in step 1. Answer "No" to assign volumes to default units.
9. When you see the PPM Main Menu, select the Volume Manager by typing V.
10. Assign PASCAL: to unit #4.
11. Remove the original PASCAL: flexible disk from the first disk drive.
12. Type Q to quit the Volume Manager and return to the PPM Main Menu; then type Q to go to the Pascal command line.

To use this volume as the system volume, start up your system with the PPM Startup disk and PASCAL:, and reply "Yes" to `Assign volumes to their default unit?`

Be sure to remove PASCAL: from the disk drive after startup to avoid having two volumes with the same name on line at one time.

Using the Hard-Disk Volume as the Pascal System Volume

You can make the hard-disk volume you've just created your Pascal system disk by assigning it to unit #4. Normally, the Pascal system expects unit #4 to be the first flexible-disk drive. PPM will automatically reassign the disk drive to unit #12 when a hard-disk volume is assigned to unit #4.

When you assign a hard-disk volume to unit #4, keep the following factors in mind:

- The volume name of the hard-disk volume you use as the system volume must be the same as that of the flexible disk you use to start up the system.
- SYSTEM.PASCAL must be at the same relative block number on the hard-disk volume as it is on the flexible disk you use for startup.
- You cannot format flexible disks in drive 1 using FORMATTER.CODE if the unit number of the drive has been changed from #4 to #12.

If you want to format disks you must either use a disk drive other than drive 1, or you must start up with your APPLE1 disk when you want to use FORMATTER.

- If you start up from the flexible-disk drive, assign a hard-disk volume to unit #4, and then try to quit from your startup program, the Pascal system will expect to find the startup volume in unit #4. You will receive a message asking you to insert the system disk and press **(RETURN)**.

If this happens you must restart the system and answer "No" to the question `Assign volumes to their Default unit number?`

If, after you reassign unit #4, you then assign unit #12 to a hard-disk volume, the flexible-disk drive will be unusable until unit #4 is available again. Releasing unit #12 will not automatically reassign #12 to the flexible-disk drive.

Note on Using the ProFile With 1.2 Startup Disks

The files SYSTEM.ATTACH, ATTACH.DRIVERS, and ATTACH.DATA that you will see on your 1.2 startup disk, as well as on *PPM Program*, are the files used to attach the ProFile driver to the Pascal system.

These files can only be used with Apple II Pascal 1.2 or later versions of Apple II Pascal. An earlier version of these files is available through the International Apple Core, but these versions cannot be used with Pascal 1.2 or PPM.

If you are interested in developing programs that use the ProFile with an Apple II, the ATTACH files are available, along with other Pascal ProFile tools and documentation, from Apple Computer, Inc. Contact your dealer for more information.

Blocked Device Units Versus User Units

Pascal 1.2 provides 30 units for use with blocked devices and user devices.

Units #4, #5, and #9-#20 can be used with any blocked device, such as a flexible-disk drive.

Units #128-#143 can only be accessed by using UNITREAD and UNITWRITE calls.

See the *Apple II Pascal Language Reference Manual* for information on UNITREAD and UNITWRITE.



Using PPM With More Than One ProFile

You can have as many as three ProFiles attached to your Apple II. You can use PPM with each ProFile by keeping these guidelines in mind:

- You can use PPM with only one ProFile at a time. You choose which ProFile you want to work with by using the Next command from the Volume Manager command line.
- When you start up PPM, the ProFile with an interface card in the lowest- numbered slot (drive 0) is automatically selected. Until you select another ProFile by using the Next option, every action you perform with PPM will be performed on drive 0.
- You can create a total of 31 volumes on each ProFile, but you can still only use 14 of the possible 93 volumes at one time. However, the 14 volumes can be located on any combination of ProFiles.

How You Might Use PPM With Two ProFiles

Here's an example. You have two ProFiles attached to your Apple. One is installed in slot 4—it's drive 0. The second ProFile is installed in slot 5, which makes it drive 1.

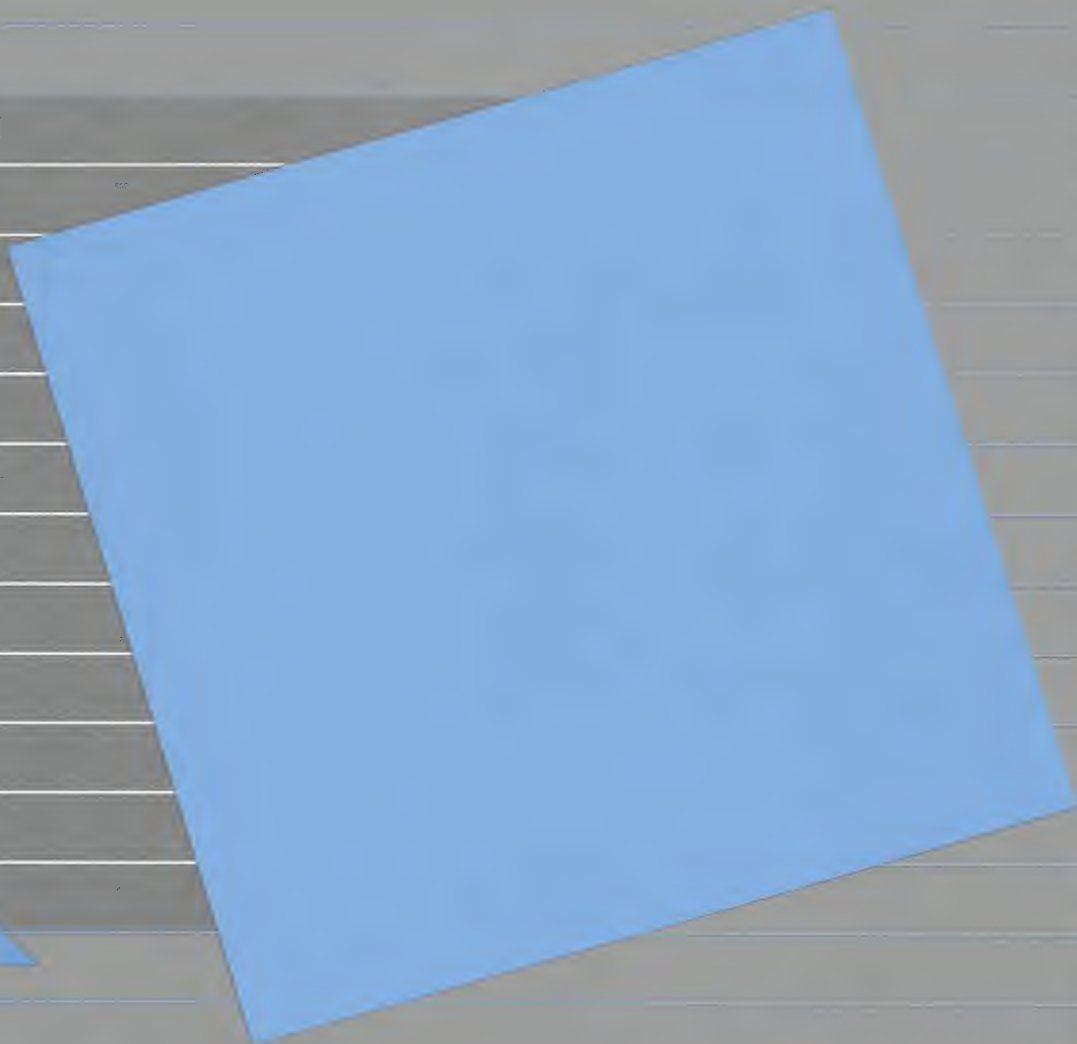
You want to create two new volumes to use with a new application. You decide to put one volume on the drive 0 ProFile and one on the drive 1 ProFile.

- You start up PPM. Drive 0 is automatically selected. You go to the Volume Manager and then select the Create command.
- After you've created the new volume you select the drive 1 ProFile using the Next command.
- Now you can create a volume on your second ProFile.
- When you use the application both volumes will be available, as long as they are assigned to units.

Assigning Volumes to Units With More Than One ProFile

If a volume on one of your ProFiles is assigned to a unit and you choose to assign a volume on a different ProFile to the same unit, the Volume Manager will release the volume currently assigned, even though it is on a different ProFile than the one currently selected, before assigning the new volume.

If, by chance, one of your ProFiles is turned off, the Volume Manager will not know about its contents, and you may inadvertently end up with two volumes on different ProFiles assigned to the same units. At startup time, the Pascal system will accept the volume on the ProFile with the higher drive number. The other volume will be released.



Glossary

backup: To make a copy for safekeeping. In the event of a power failure, data writing errors, or a careless mistake that destroys information on a disk, a backup copy can save you much time and grief.

backup set: The series of disks produced by a backup session.

block: A unit of storage 512 bytes long. One byte is the equivalent of one character, so a block will hold 512 characters.

default: The selection that is automatically used by the computer when no other explicit information has been given.

destination unit: The unit number of the device that contains the disk to which you will copy the information you're backing up.

file: The smallest unit of storage with its own name.

flexible disk: A 5 1/4-inch removable disk. Also called a *floppy disk*.

format: To prepare a blank disk for use by a computer.

hard disk: A disk made of hard metal and sealed into a drive, or cartridge. Hard disks are typically faster in response and larger in storage capacity than flexible disks.

hard-disk volume: A unit of storage on a hard disk that is the equivalent of a flexible disk, with the exception that it is of user-definable size.

restore: To transfer information from backup disks to the main storage device, usually a hard disk.

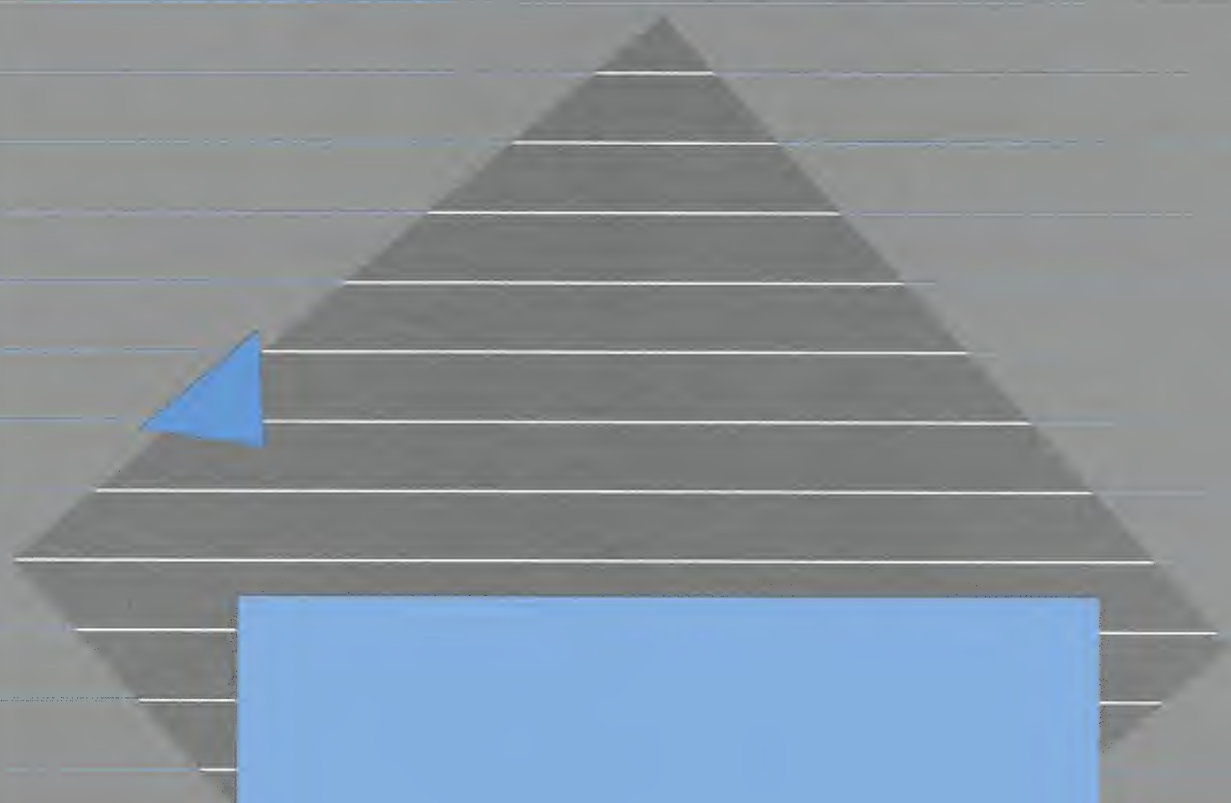
source unit: The unit number of the hard-disk volume you are backing up.

toggle function: A function with only two values—either on or off.

unit number: A number assigned to any input or output device or a hard-disk volume. A device or volume must have a unit number in order for it to be accessible to the Pascal system.

volume: A unit of storage, identified by a volume name. A volume contains files and a directory with information about those files.

wildcard: A character that stands for any possible character or combination of characters in a file specification.



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